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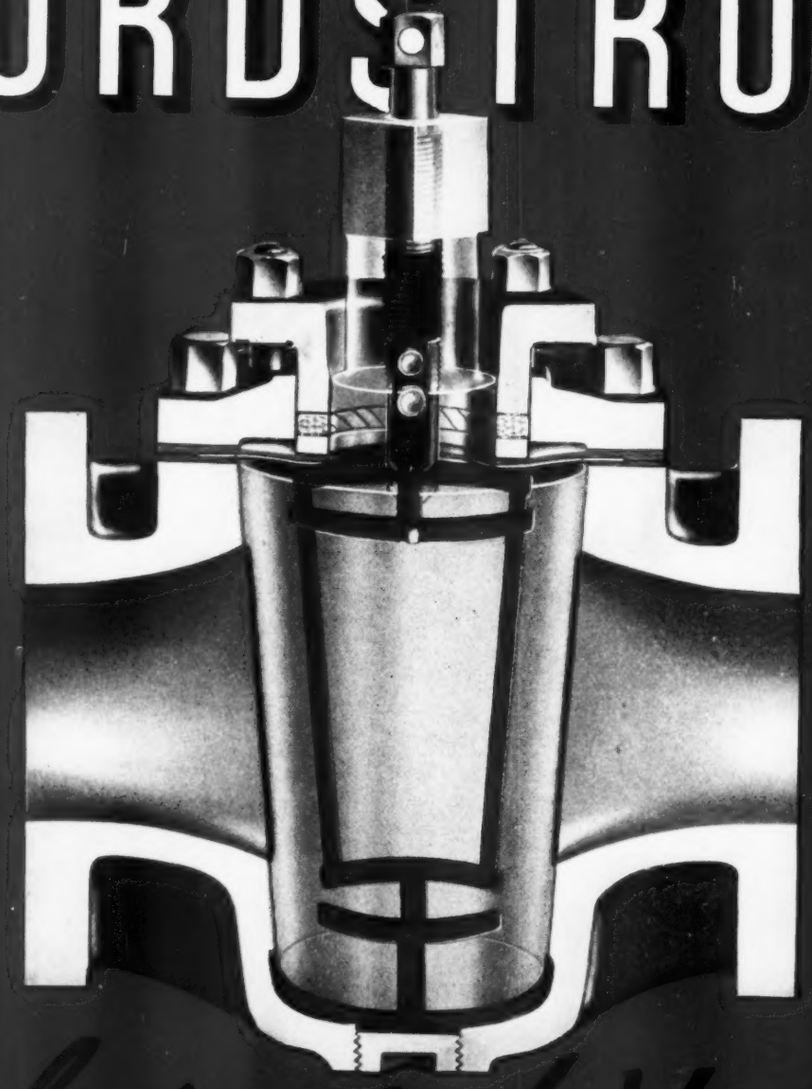

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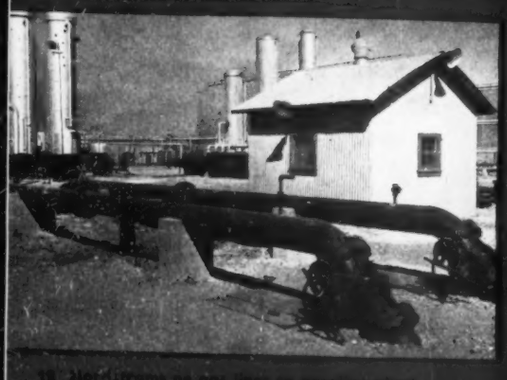
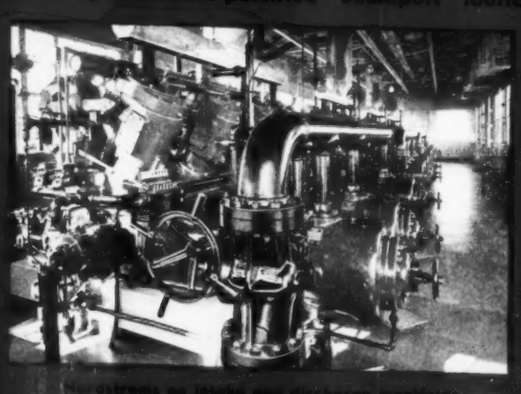


19 Nordstroms on gas lines at gasoline plant



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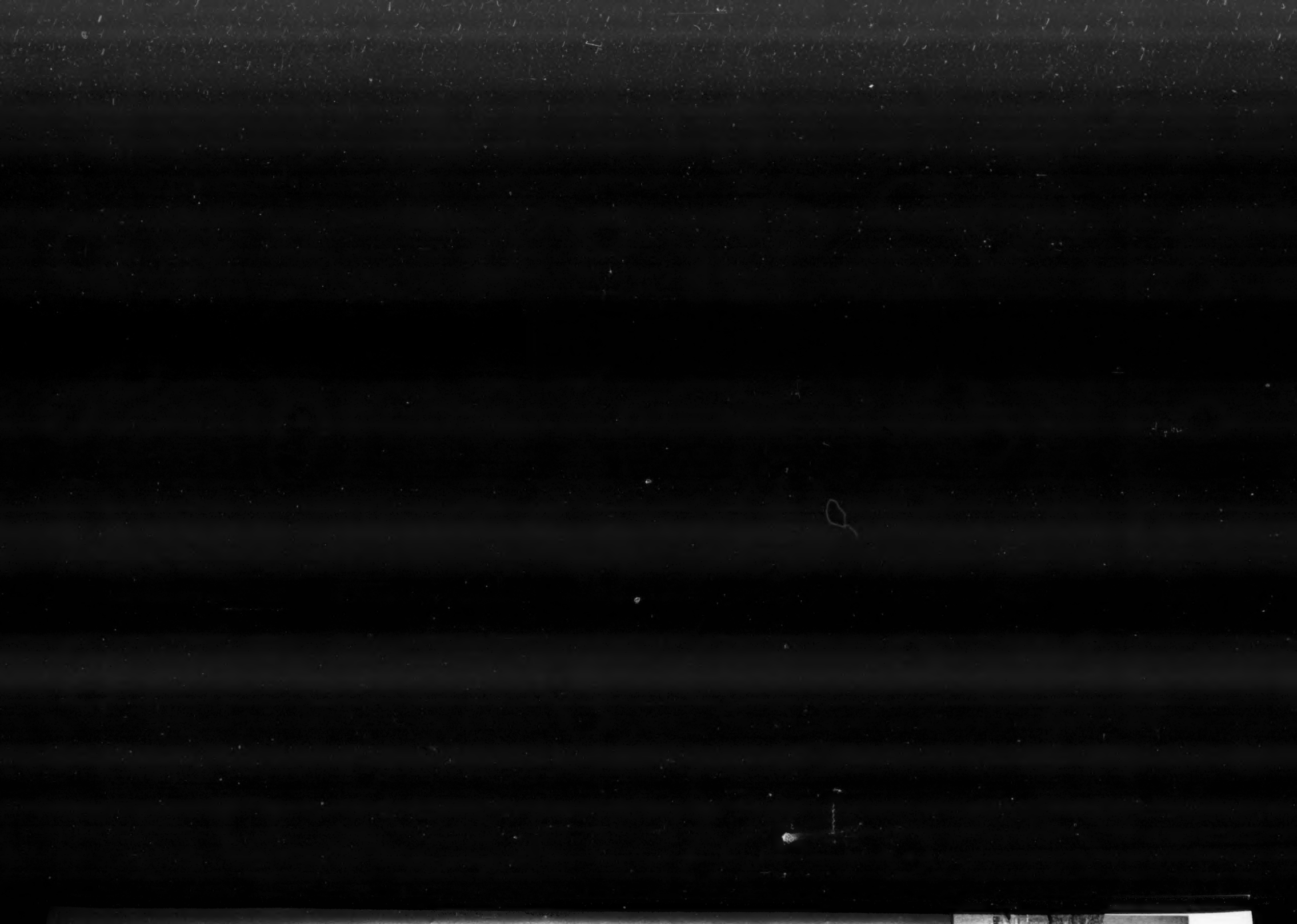

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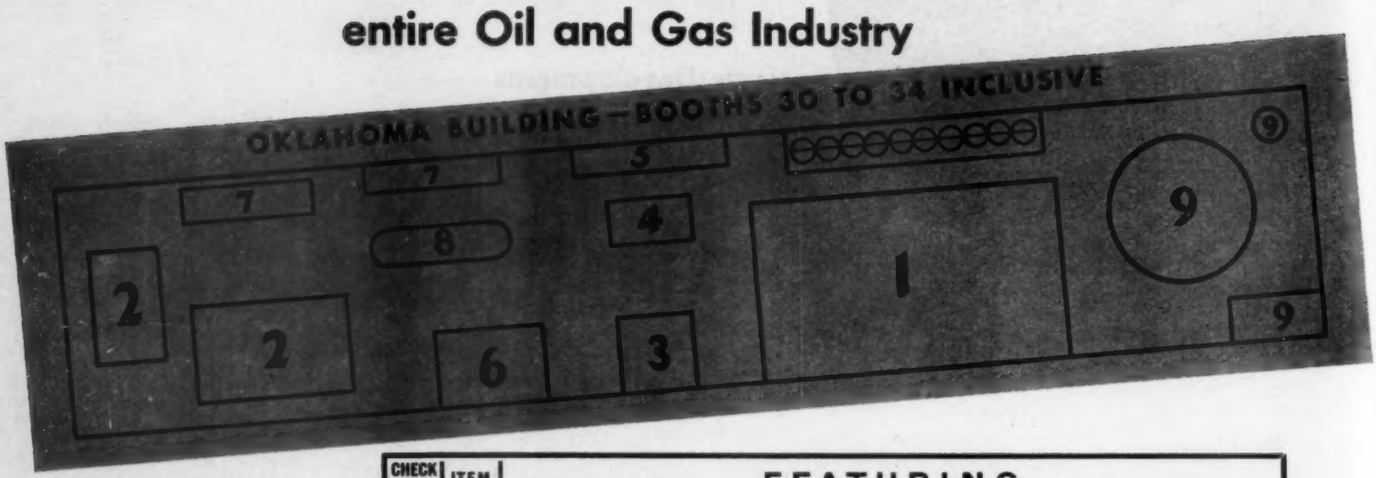

Check the items in which you are particularly interested and use this list as a reminder to get full details at the show.

NOTE: If you can't make the show, you can get full details about any of the products or processes in which you are interested by writing to the nearest of the offices listed below.

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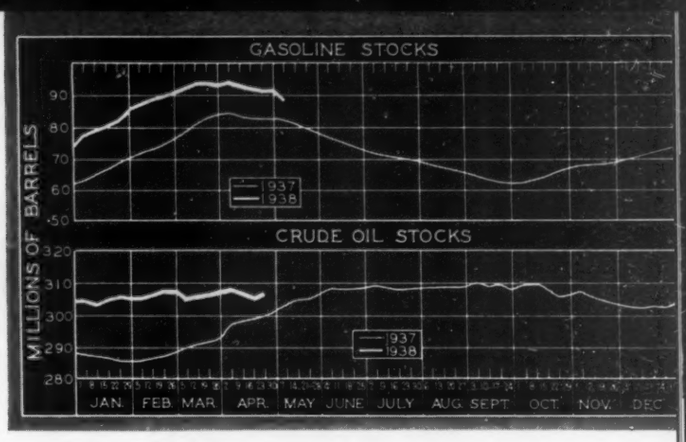


Data Point

To Record Demand

THE most encouraging developments of the week in the oil business came from statistics relating to demand. Preliminary reports indicate that April gasoline consumption exceeded that of the same month last year, and projected requirements for May in most cases call for shipments higher than those of May, 1937.

CRUDE PRODUCTION *3,374,375 barrels daily average—down 18,667 barrels.*

CRUDE STOCKS *307,654,000 barrels as of April 23—up 880,000 barrels.*

GASOLINE STOCKS *89,464,000 barrels as of May 7—down 1,875,000 barrels.*

REFINERY RUNS *3,080,000 barrels daily week ending May 7—down 135,000.*

More conclusive as to demand was the first-quarter report of the Bureau of Mines, which sustained earlier estimates for that period. The report for the first three months of this year shows that the industry in this country had the largest first-quarter total demand in its history for crude oil, gasoline and kerosene. The gains were: crude oil, 5.8 per cent; gasoline, 4 per cent, and kerosene 8.5 per cent. While the domestic demand for crude and these two refinery products ran ahead of last year's, increased exports were a major factor. Exports of both crude oil and refinery products in the first quarter averaged 469,000 barrels daily, a gain of 121,000 barrels, or 34 per cent, over the first quarter of 1937. This gain in foreign purchases more than offset the domestic decline in heavy fuels and lubricants, so the demand for all oils showed an .8 per cent increase. In the light of these data it seems reasonable to conclude that the industry can look forward to a record consumption of motor fuels through the summer months.

The situation with reference to supply is not as clear-cut as that which has to do with demand. The small decline in national production recorded last week falls short of estimated curtailment needs by at least 100,000 barrels daily. The California program calls for additional reductions this week and the output in Oklahoma and some of the other states should be lower over the remainder of the month.

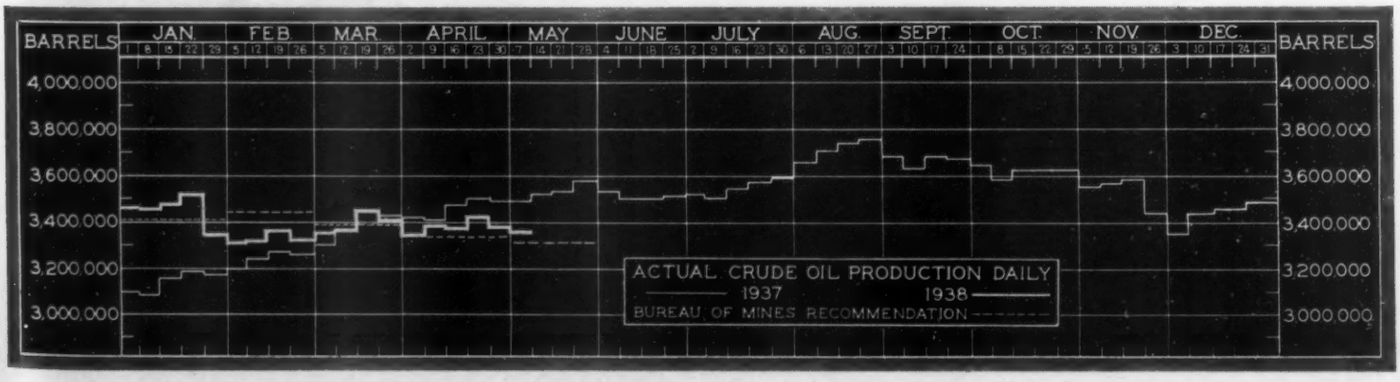
In Texas two members of the three-man railroad commission announced in favor of a Saturday shutdown of oil fields in addition to the present Sunday closing if it was necessary to balance the state's crude production with the needs of buyers. This apparently was an answer to production members of an East Texas association who have demanded that the Sunday shutdown be ended.

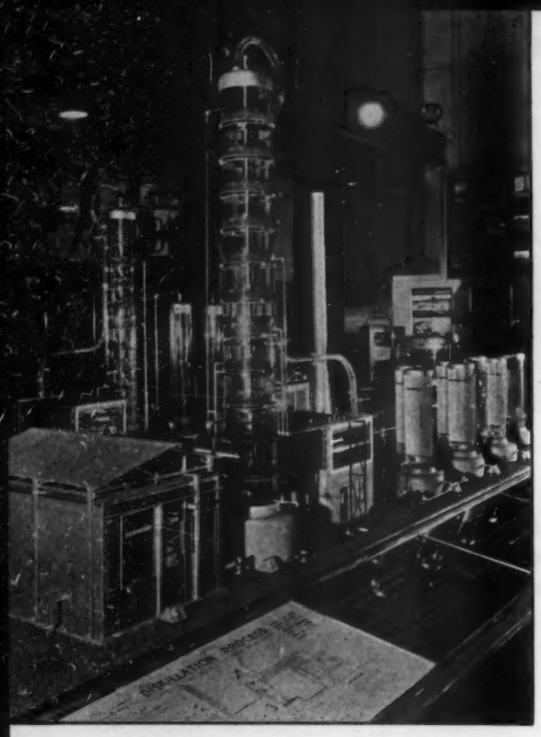
The most important price development of the week was that announced Tuesday by the Kanotex Refining Company which reduced its posted price schedules 25 cents per barrel. This action reflects the position of the nonintegrated refiner in the Mid-Continent, who has seen his operating margin of profit—never very wide—replaced with substantial losses due to a decline in prices for refinery products.

Daily Average Production for Week

	May 7 1938	Bur. Mines May est.	May state allowables	Apr. 30 1938
Oklahoma City	119,975			101,750
Fitts	53,375			50,825
Remainder of state	313,425			321,300
Total Oklahoma	486,775	510,300	460,000	473,875
East Texas	433,899			433,198
West Texas	200,100			197,500
North Central Texas	109,548			106,950
Texas Panhandle	64,451			70,700
East Central Texas	104,749			103,250
Gulf Coast Texas	334,150			334,697
Southwest Texas	107,800			106,403
Total Texas	1,354,607	1,322,500	1,319,033	1,352,698
North Louisiana	79,695			76,715
Gulf Coast Louisiana	182,549			183,900
Total Louisiana	262,244	243,200	251,450	260,615
California	690,500	667,800	624,735	710,200
Kansas	162,900	168,700	173,000	177,750
Arkansas	48,555	44,500		54,520
Eastern fields	144,100	139,800		142,100
Michigan	56,294	52,600		52,114
New Mexico	103,140	103,900	103,900	106,010
Rocky Mountain area	65,170	64,800		63,160
Total United States	3,374,375	3,318,100		3,393,042

Decrease, 18,667 bbls. daily.





Working model of complete refinery

WORLD'S LARGEST INDUSTRIAL EXPOSITION OPENS SATURDAY

By Dal Dalrymple

Tulsa became the focal point of the world oil industry this week as thousands of oil men turned their steps toward this city, bent upon attending the tenth International Petroleum Exposition and participating in meetings and special events to be held preceding or during this largest of the world's industrial exhibitions. The exhibits are in place, programs are arranged and the stage is set for opening of the exposition Saturday, May 14, to continue through May 21.

General Manager W. B. Way reports that 402 companies have exhibits related to drilling and production; 317 companies' exhibits featuring transportation; 303 companies' exhibits featuring refining and 208 dealing with marketing. He estimates the enlarged exposition has on display $10,000,000 worth of exhibits.

From all sections of the nation, from several foreign countries there were coming to Tulsa oil and equipment men, executives and field workers, technical and scientific experts, engineers, geologists and scouts, refiners, marketers and representatives of allied phases of the industry!

Advance registrations indicate a record attendance at the 1938 exposition, which, the management says, will be 50 per cent larger and more complete than any previous oil show, offering many things of interest for all persons connected with the industry in any of its varied phases.

First Visitors Arrive

The vanguard of equipment men and others who will be in charge of company exhibits at the exposition began arriving the past week-end and were followed at mid-week by delegates to two pre-exposition meetings. These were the annual conventions of the National Oil Scouts Association of America and of the Natural Gasoline Association of America. The Natural Gasoline meeting opened Wednesday and was to continue through Friday, while the Scouts were due to convene Thursday for a three-day convention. Another pre-exposition affair of interest was the annual president's dinner meeting of the Mid-Continent section of the American Institute of Mining and Metallurgical Engineers, scheduled for Thursday night at the Tulsa Chamber of Commerce. Delegates to these events were expected to remain in Tulsa for the exposition.

Tulsa hotels are filled to capacity, and advance reservations show they will be filled all during the exposition. Visitors to the city, coming here for the show, will not lack accommodations, however. The exposition management, hotels and Tulsa residents generally are seeing to that. Housing committee booths have been set up in downtown hotels and at exposition headquarters, and those who need accommodations will be able to obtain them through the housing committee. Many residents of Tulsa will open their homes to the visitors, providing them with modern accommodations while in the city.

The exposition gates open at 9:30 a.m. Saturday, but the formal opening ceremony will not occur until 2 p.m. that day.

Auto Executive to Speak

A. E. Barit, of Detroit, president of the Hudson Motor Co. and one of the leaders of the automotive industry, will be the principal speaker at the opening program, to be held from a speaker's stand in the main street on the exposition grounds. W. G. Skelly, head of the Skelly Oil Co. and president of the exposition; W. B. Way, general manager of the exposition, other oil show executives and notable oil men will be on the speakers' stand and participate in the ceremony. T. P. Gilmer, of Okmulgee, Okla., is chairman of the opening ceremony committee. A part of this program will be broadcast over a radio hook-up.

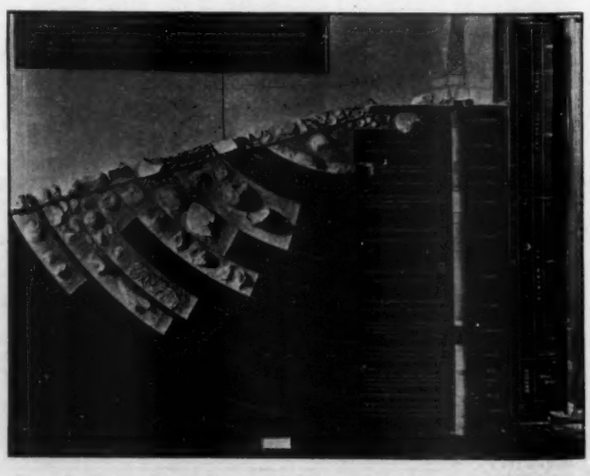
Several new features, in addition to the comprehensive showing of production, refining and marketing exhibits, will add to the general interest of the exposition.

Foremost among these is the new Hall of Science, housing the largest and most complete exhibit of scientific and technical material ever displayed at an oil show. Many of these exhibits were loaned to the exposition by the Chicago Museum of Science and Industry, the remainder being supplied by individual companies invited to participate by the management. Cost of construction of the scientific exhibits is said to exceed $250,000. The displays in the Hall of Science will depict, through charts, dioramas and working models, how oil is found and refined and how the finished by-products of crude petroleum are distributed and marketed. Perhaps the most interesting part of the scientific exhibit for the majority of spectators will be the 30-foot operating model of a modern petroleum refinery. All major refining operations will be performed by this working model, with each operation being explained verbally as it occurs. Informed guides will be on duty at all times to explain details of the numerous scientific and technical displays.

The "human touch" to the exposition will be provided in the events for the pioneers of the petroleum industry, the old timers who paved the way for the great industry that made this big show possible. Dedication of a memorial to the old timers, and selection of the "Grand Old Man of the Industry" and "Grand Old Man of Tulsa" will feature this part of the exposition program. The replica of the Drake well, at the east end of the exposition grounds, will be headquarters for the pioneers. Hal R. Gruber, of Union Wire Rope Corp., heads the old timers committee.

Special events for international delegates, expected to be present from 20 or more nations, have been arranged. A reception and dinner dance for the foreign delegates is scheduled for Southern Hills Country Club the night of May 17. They also will be guests at luncheons of the Rotary Club and Chamber of Commerce, and field trips will be arranged for those desiring to take them. James H. Gardner, of Gardner Petroleum Corp., is chairman of the committee in charge of international events. Foreign delegates expected to be present include:

C. W. Dingman, director of Department Lands and Mines, Edmonton, Alberta, Canada; N. A.



Fossils from East Texas field, one of many exhibits in the Hall of Science

Berg, Association Francaise des Techniciens, Paris, France; Charles A. Lambert, Societe des Huiles Antar, Pechelbronn, France; M. Ferraud, Societe Aonyme D'Explorations Minieres, Strasbourg, France; R. Schlumberger, chief engineer, Societe Aonyme D'Explorations Minieres, Strasbourg, France; Dr. A. Logoff, "Texaco" Raffineries Petrole, Paris, France; Herman von Rauterkranz, Celle, Germany; Dr. Richard Levi, Fachlaboratorium fur die Minerolindustrie, Hamburg, Germany; Count John Charles Dal Verme, Milano, Italy; Dr. Antonio Baglio, engineer, Bureau of Industry, Napoli, Italy; representative of Zavody Fantovy, Pardubice, Czechoslovakia; Rafael Espaillet, consul Dominican Republic, Houston, Tex.; Humberto Leignadier, Consul General of Panama, New Orleans, La.; representative, Anglo Canadian Development & Holding Co., Calgary, Canada; H. A. Hassan, Paris, France; and Vanit Panananda, Japan.

Several events have been planned by the exposition management for petroleum engineers, in recognition of their contributions to development of the industry. The engineers will have a booth in the Hall of Science, with attendants on hand to answer questions and provide information. A. J. Kerr, of the Engineers Club of Tulsa, is chairman of the engineering and scientific societies committee, which is arranging for Engineers Day at the exposition May 20, and other events. George Bays, Stanolind Oil & Gas Co., will be host representing the engineers on their day. Other members of the committee are Dr. Emory Kemler, American Society of Mechanical Engineers; R. K. Lane, American Institute of Electrical Engineers; Dr. C. K. Francis, International Petroleum Technologists and technical editor of The Oil and Gas Journal; J. P. D. Hull, American Association of Petroleum Geologists and Society of Economic Paleontologists and Mineralogists; R. R. Thompson, American Welding Society; D. A. Leach, American Society of Civil Engineers; K. A. Covell, American Institute of Mining and Metallurgical Engineers; Glenver McConnell, Oklahoma Society of Professional Engineers; C. A. Young, Dallas, Tex., Standardizations Committee of American Petroleum Institute; William F. Love, Society of Automotive Engineers; Jerry Marshall, American Chemical Society; W. T. Born, Society of Exploration Geophysicists, and J. H. Engelbrecht, secretary of the Engineering and Scientific Events Committee.

Description of Exposition

A complete directory of the several hundred exhibits and exhibitors starts on page 174. Information includes names of companies, location of booths, names of those in attendance and descriptions of exhibits.

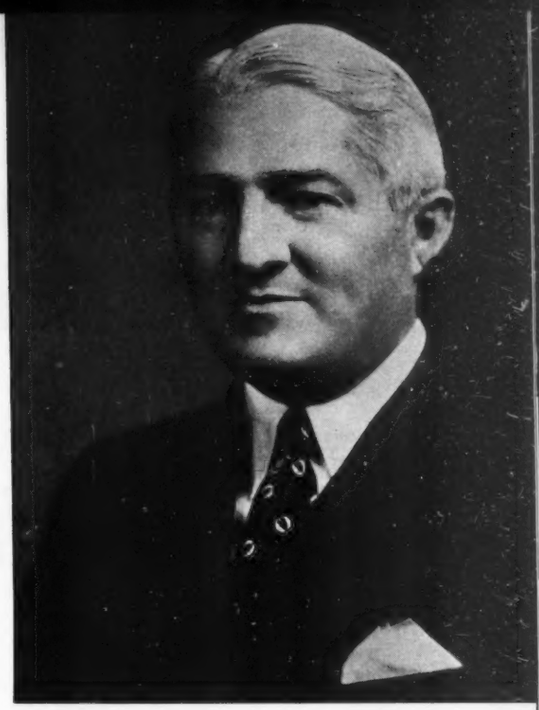
A map of exposition grounds appears on page 172.

Purchasers and Transporters

While every day at the exposition will be one of activity and study for purchasing agents, Friday, May 20, has been designated their day for special functions. Members of the Purchasing Agents Association of Tulsa, their guests and other buyers will attend the exposition in a group that day, their program culminating with an informal dinner at the Tulsa Club that night. On May 21 they will participate in an informal discussion of Oil Company Buyers Group of the National association. A large attendance of out-of-town buyers is assured.

The Petroleum Motor Transport Association is among the prominent oil industry groups hav-

(Continued on Page 96)



Principal speaker at opening ceremony—A. Edward Barit, president of Hudson Motor Car Company

Aero Exploration Co.

The enlarged 1938 International Petroleum Exposition seen from the air. Roof of Hall of Science shown in right foreground

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President

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C. H. Pape
Frank J. Hinderliter
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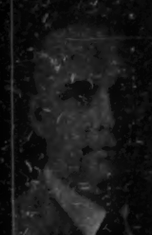

M. F. Waters

SATURDAY, MAY 14

Refiners Day: W. G. Skelly, President, Skelly Oil Co., Host.

Directors for the Day: Clyde Alexander, R. H. Bartlett, Frank R. Billingslea, Allmand M. Blow, A. F. Bourne, W. M. Bovaird, A. E. Bradshaw, J. H. Brooks, D. E. Buchanan, J. Garfield Buell, E. J. Bullock, C. F. Camp.

In Honor of: Kansas, Arkansas; Winfield, Independence, Great Bend, Eldorado, Chanute, Topeka, Augusta, Neodesha, Hayes, Hutchinson, McPherson, Wichita.

9:30 a.m.: Exposition gates open.

10:00 a.m.: Registration of "Old Timers" of Petroleum Industry in Replica of Old Drake Well, Exposition grounds.

10:00 a.m.: Hall of Science opens—Guides furnished.

2:00 p.m.: Opening Ceremony.

3:00 p.m.: Registration of delegates from foreign countries.

6:00 to 8:00 p.m.: Music in Cafeteria by Larry Lee's band from Movieland.

7:30 p.m.: Special Showing in Hall of Science.

9:00 p.m. to 1 a.m.: Music by Larry Lee in Cafeteria.

SUNDAY, MAY 15

Natural Gasoline Day: J. A. La Fortune, Vice President, Warren Petroleum Co., Host.

Directors for the Day: William I. Connelly, R. E. Day, R. O. Dietler, C. P. Dimit, Ray L. Dudley, George A. Dye, Dr. G. Egloff, R. S. Ellison, W. S. Farish, Harold B. Fell, E. R. Filley, W. S. Fitzpatrick.

In Honor of: Pennsylvania, Texas, Mississippi; Franklin, Titusville, Pittsburgh, Oil City, Bradford, Washington, Brownsville, Fort Worth, Amarillo, Pampa, Longview, Houston, Wichita Falls, Dallas, San Angelo, Sweetwater, Marshall, Eagle Pass, Midland, Tyler, Kilgore, San Antonio, Jackson.

9:30 a.m.: Exposition gates open.

10:00 a.m.: Registration of "Old Timers" of Petroleum Industry in Replica of Old Drake Well, Exposition grounds.

10:00 a.m.: Hall of Science opens—Guides furnished.

3:00 p.m.: Ceremony dedicated to "Old Timers," Exposition grounds.

6:00 to 8.00 p.m.: Music in Cafeteria by Larry Lee's Band from Movieland.

7:30 p.m.: Special Showing in Hall of Science.

9:30 p.m. to 1 a.m.: Music by Larry Lee in Cafeteria.

MONDAY, MAY 16

Production and Purchasing Day: J. J. Conry, President, Carter Oil Co., Host.

Directors for the Day: J. P. Flanagan, Walter Fleming, C. W. Flint, H. V. Foster, Jacob France, Dr. C. K. Francis, Wirt Franklin, J. H. Gardner, Robert F.

C. Weiss | Rush Greenslade | Ed. H. Salrin | J. H. Brooks | J. H. Satterwhite | Edward E. Robbins | Warren C. Platt | Jacob France

Day-by-Day Program of Petroleum Exposition

Garland, J. Burr Gibbons, Rush Greenslade, Henry Greis.

In Honor of: Oklahoma, Tennessee; Seminole, Ponca City, Wewoka, Okmulgee, Muskogee, Oklahoma City, Bartlesville, Guthrie, Claremore, Norman, Drumright, Ada, Glenpool, Cushing, Fairfax, Holdenville, Memphis.

9:30 a.m.: Exposition gates open.

10:00 a.m.: Hall of Science opens—Guides furnished.

10:00 a.m.: Registration of "Old Timers" of Petroleum Industry in Replica of Old Drake Well, Exposition grounds.

12:00 noon: Luncheons: Civitan Club, Alvin Hotel; Kiwanis Club, Mayo Hotel.

2:00 to 4:00 p.m.: Junior Chamber of Commerce Young Oil Men's Trip through the Diamond D-X Refinery.

6:00 to 8:00 p.m.: Music in Cafeteria by Larry Lee's Band from Movieland.

7:30 p.m.: Special Showing in Hall of Science.

8:00 p.m.: Oil Show Rodeo.

9:00 p.m. to 1 a.m.: Music by Larry Lee in Cafeteria.

TUESDAY, MAY 17

Pipe Line Day: W. R. Finney, President, Oklahoma and Ajax Pipe Line Companies, Host.

Directors for the Day: L. S. Gregory, S. A. Guiberson, Jr., P. D. Hayes, J. M. Hayner, Alf. G. Heggem, J. D. Hill, Frank J. Hinderliter, B. E. Horrigan, Fred W. Insull, Roy B. Jones, A. J. Kerr, P. C. Lauinger.

In Honor of: California, Colorado, Louisiana; Santa Barbara, Long Beach, Bakersfield, San Francisco, Los Angeles, Coalinga, Fresno, Denver, Trinidad, Shreveport, Lafayette, Monroe, Baton Rouge.

9:30 a.m.: Exposition gates open.

10:00 a.m.: Registration of "Old Timers" of Petroleum Industry in Replica of Old Drake Well, Exposition grounds.

10:00 a.m.: Junior Chamber of Commerce, Young Oil Men's Day.

10:00 a.m.: Hall of Science opens—Guides furnished.

12:00 noon: Junior Chamber of Commerce, Young Oil Men's luncheon, Chamber of Commerce dining room.

2:30 p.m.: Trip to Beggs, Okla., for Seismograph demonstration through courtesy of Seismograph Corporation.

6:00 p.m.: Reception for foreign delegates.

6:00 p.m. to 8:00 p.m.: Music in Cafeteria by Larry Lee's Band from Movieland.

7:00 p.m.: Royalty Owners Dinner, Mayo Hotel.

7:00 p.m.: Dinner Dance for foreign Delegates—Southern Hills Country Club.

7:30 p.m.: Special Showing in Hall of Science.

8:00 p.m.: Oil Show Rodeo.

8:30 p.m.: Junior Chamber of Commerce, Young Oil Men's Party.

9:00 p.m. to 1 a.m.: Music by Larry Lee in Cafeteria.

(Continued on Next Page)

P. C. Lauinger

A. J. Kerr

C. F. Camp

Walter Miller

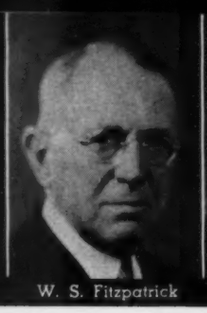
W. J. Morris

Dr. G. Egloff

C. Morris

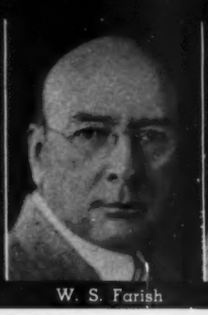
Dr. C. K. Francis

Wirt Franklin


W. S. Fitzpatrick

L. S. Gregory

Ed. H. Moore


W. S. Farish

E. J. Sadler

R. O. Dietler

J. Edgar Pew

A. W. Peake

P. D. Hayes

E. B. Reeser

Henry L. Phillips

International Petroleum Exposition

Day-by-Day Program

(Continued from Preceding Page)

WEDNESDAY, MAY 18

Marketers Day: R. W. McDowell, Vice President, Mid-Continent Petroleum Corp., Host.

Directors for the Day: John S. Mabee, Clarel B. Mapes, E. B. McFarlin, Joseph R. McGraw, D. F. McMahon, Walter Miller, A. A. Moody, Ed. H. Moore, William D. Moorer, C. Morris, W. J. Morris.

In Honor of: Utah, New Mexico, Wyoming; Salt Lake City, Santa Fe, Roswell, Carlsbad, Sheridan, Albuquerque, Casper, Newcastle, Lander, Gillette, Cheyenne, Gallup, Billings, Great Falls, Helena, Lewistown.

9:30 a.m.: Exposition gates open.

10:00 a.m.: Registration of "Old Timers" of Petroleum Industry in Replica of Old Drake Well, Exposition grounds.

10:00 a.m.: Hall of Science opens—Guides furnished.

12:00 noon: "Old Timers" Luncheon, Shamrock Lodge.

12:00 noon: Luncheon for International Petroleum Exposition Delegates, Sponsored by Rotary Club.

6:00 to 8:00 p.m.: Music in Cafeteria by Larry Lee's Band from Movieland.

7:30 p.m.: Special Showing in Hall of Science.

8:00 p.m.: Oil Show Rodeo.

9:00 p.m. to 1 a.m.: Music by Larry Lee in Cafeteria.

THURSDAY, MAY 19

Drilling Contractors Day: J. E. Mabee, President, Mabee Consolidated Corp., Host.

Directors for the Day: E. J. Nicklos, A. O. Olson, C. H. Pape, George Parker, F. B. Parriott, A. W. Peake, J. Edgar Pew, Henry L. Phillips, Waite Phillips, Warren C. Platt, Ralph B. Pringle, F. O. Prior.

In Honor of: West Virginia, New York; Charleston, Parkersburg, Huntington, Sistersville, Wheeling, Clarksburg, Olean, New York City.

9:30 a.m.: Exposition gates open.

9:30 a.m.: Safety conference meet opens.

10:00 a.m.: Registration of "Old Timers" of Petroleum Industry in Replica of Old Drake Well, Exposition grounds.

10:00 a.m.: Hall of Science opens—Guides furnished.

12:00 noon: Safety Conference Luncheon.

12:30 noon: "Old Timers" Luncheon at Exposition grounds, W. G. Skelly, Host.

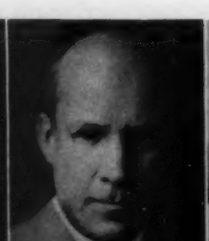
6:00 to 8:00 p.m.: Music in Cafeteria by Larry Lee's Band from Movieland.

8:00 p.m.: Oil Show Rodeo.

9:00 p.m. to 1 a.m.: Music by Larry Lee in Cafeteria.

FRIDAY, MAY 20

Engineers Day: George S. Bays, Chief Research Engineer, Stanolind Oil & Gas Co., Host.



First Aid Safety Contest Day:

Purchasing Agents Day: W. L. James, Purchasing Agent, Stanolind Oil & Gas Co., Host.

P.M.T.A. Day:

Directors for the Day: E. B. Reeser, Edward E. Robbins, Harry H. Rogers, C. F. Roeser, E. J. Sadler, Ed H. Salrin, J. H. Satterwhite, W. A. Schlueter, R. C. Sharp, J. S. Sidwell, W. G. Skelly.

In Honor of: Indiana, Ohio; Vincennes, Columbus, Marietta, Canton, Akron, Findlay.

8:00 a.m.: Golf Finals.

9:30 a.m.: Exposition gates open.

9:30 a.m.: Assembling and Registration of Purchasing Agents at Headquarters, Tulsa Building.

9:30 a.m. to 4:30 p.m.: First Aid Contest.

10:00 a.m.: Registration of "Old Timers" of Petroleum Industry in Replica of Old Drake Well, Exposition grounds.

10:00 a.m.: Hall of Science opens—Guides furnished.

12:00 noon: "Old Timers" Luncheon—Frank Wolfe, at his farm.

12:00 noon: Luncheons: Chamber of Commerce, Special Exposition Program.

12:30 p.m.: P.M.T.A. Barbecue Luncheon, Cooper Plant, Sand Springs Road.

2:00 p.m.: First Aid Contest, Demonstration, Exposition grounds.

4:00 p.m.: Awarding of Medals to "Old Timers," Exposition grounds.

6:00 to 8:00 p.m.: Music in Cafeteria by Larry Lee's Band from Movieland.

7:00 p.m.: Informal Dinner, Purchasing Agents, Roof Garden, Tulsa Club, Fifth and Cincinnati.

7:30 p.m.: First Aid Meet Banquet and awarding of Medals.

7:30 p.m.: Oil Scouts Dinner in Cafeteria, Exposition grounds.

7:30 p.m.: P.M.T.A. Dinner Meeting, Ivory Room, Mayo Hotel.

8:00 p.m.: Oil Show Rodeo.

9:00 p.m. to 1 a.m.: Music by Larry Lee in Cafeteria.

SATURDAY, MAY 21

General Oil Industry Day: Henry L. Phillips, President, Sinclair-Prairie Oil Co., Host.

Directors for the Day: Earl Sneed, Hugh Stalcup, O. C. Staples, Jay P. Walker, M. F. Waters, T. R. Weymouth, H. C. Weiss, Frank Wolfe, H. F. Worley.

In Honor of: Missouri, Illinois, Kentucky, Michigan; Joplin Kansas City, St. Louis, Chicago, Effingham, Lawrenceville, Flora, Casey, Centralia, Robinson, Olney, Muskegon, Detroit, Mount Pleasant, Flint, Big Rapids, Saginaw, Owensboro, Lexington, Bowling Green, Ashland, Paducah.

9:30 a.m.: Exposition gates open.

12:00 noon: Purchasing Agents Luncheon—Oil Company Buyer's Group, National Association of Purchasing Agents, Roof Garden, Tulsa Club.

6:00 to 8:00 p.m.: Music in Cafeteria by Larry Lee's Band from Movieland.

7:30 p.m.: Special Showing in Hall of Science.

8:00 p.m.: Oil Show Rodeo.

9:00 p.m. to 1 a.m.: Music by Larry Lee in Cafeteria.

SPARKS FROM THE NEWS

OBVIOUS REMEDY

Major company announces intention to shut down Mid-Continent refinery because of disparity between crude oil and refinery prices and adds that crude prices are not too high. The conclusion is obvious.

CAUTION

Chicago oil marketing companies selling tires are hesitant about signing contracts with tire manufacturers who now tender agreements designed to stabilize prices. The marketers remember the Madison case.

DISTILLATE WELLS

Wells producing a high-gravity oil may be classified as oil wells or gas-distillate wells depending upon the nature of the material at the base of the hole but apparently it is extremely difficult to determine the latter.

RILEY WILDCAT

Northeastern Kansas, already attractive to lease men, is calling the wildcatters. A wildcat is being started in Riley County, in the northeastern area.

YOUNG AND VOLATILE

Natural gasoline plant operators, who constitute the youngest and most "volatile" branch of the industry, are holding their annual meeting in Tulsa this week. Their 6,000,000-gallon daily output would have supplied the motor fuel needs of the entire country 22 years ago.

CONROE TREND

The Conroe trend increases in importance with the completion of a gas-distillate well in Beauregard Parish of Coastal Louisiana.

TO THE EAST

Reports indicate that California's excess production of crude is to result shortly in increased shipments of heavy crudes to the East Coast, where they are not needed.

"EYES" CLOSED

The "eyes" of the industry will be closed for a time this week while oil scouts hold their annual meeting.

MORE OUTLETS

Central Illinois, with 440 wells, and Michigan, with a new peak in production, need more outlets, while Oklahoma and Kansas feel they have already given them too many.

SIMPLE PROBLEM

With gasoline and kerosene demand establishing new peaks, the oil industry's problem of balancing supply and demand is simple compared to other industries with outlets less than half what they were a year ago.

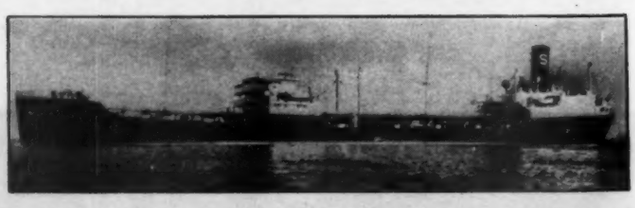
A LITTLE CITY

Indicative of the size of the International Petroleum Exposition, which opens in Tulsa Saturday, approximately 2,000 representatives of exhibitors—a small city in themselves—will be in charge of the hundreds of displays.

BACKFIRE

Then there is the company whose production department made "a good deal" in getting rid of some unneeded crude only to find that the crude came back in additional competition for its marketing department at low prices.

TIMES HAVE CHANGED



Typical two-bunk room with hot and cold water and forced draft ventilation for members of crew on Standard of California tanker H. D. Collier

Two New Fields in San Joaquin Basin Are Indicated

By L. P. STOCKMAN

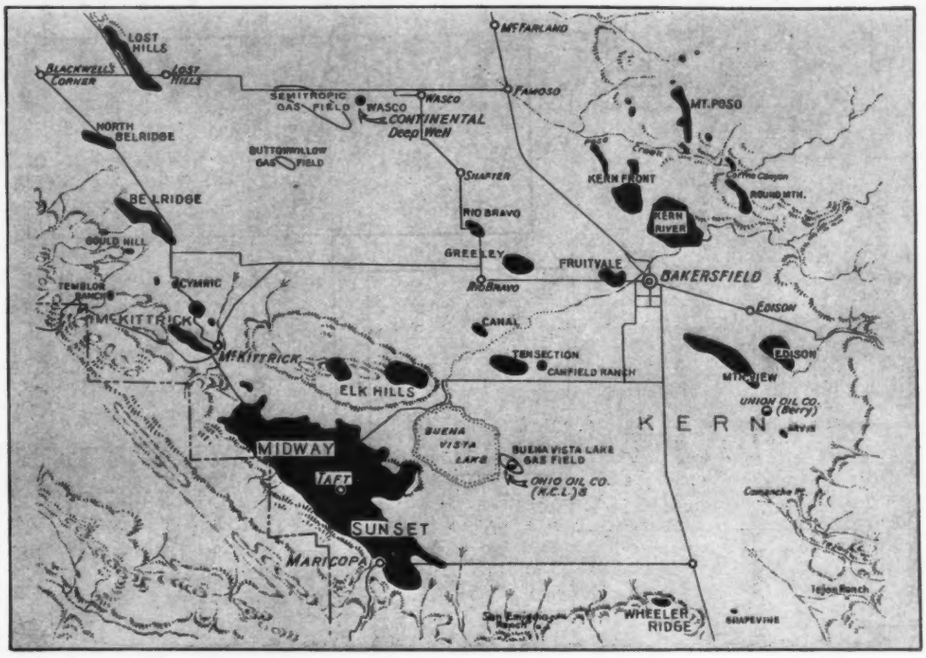
LOS ANGELES, Calif., May 9.—Ohio Oil Co. is believed to have located a new oil field in the Buena Vista Lake district of Kern County, and Union Oil Co. has landed a string of 8⅝-inch casing in a wildcat in the Arvin district in southern San Joaquin Basin. Union is expected to make an early production test, but Ohio will probably drill ahead to determine the possibility of developing deeper production before testing the new zone.

The potential discovery well in the Buena Vista Lake district, No. 8-A Kern County Land in section 32-31-26, logged what is believed to be the Stevens oil sand discovered by Shell Oil Co. in the Ten Section field and subsequently by Standard Oil Co. at Greeley, Ohio Oil Co. at Canal. Top of the probable pay was logged in the Ohio test at 10,022 feet, and solid oil sand was cored to 10,077 feet from which point a shale body was logged to 10,103 feet. From 10,103 feet to 10,139 feet the formation was an oil sand with streaks of shale, and from 10,139 feet to 10,180 feet the company cored a hard shale, with an increasing amount of hard gray sand. Ohio Oil Co. holds leases on approximately 6,000 acres of potentially productive acreage owned in fee by Kern County Land Co. The discovery well is located about the center of the block.

The discovery of the Stevens oil zone in the Buena Vista Lake field was antedated by the development of commercial gas production, as Ohio Oil Co. proved the existence of a substantial accumulation of dry gas a few years ago, and has completed five commercial dry-gas wells in that field. Discovery of dry gas in the Buena Vista Lake district can be attributed to the finding of a geophysical high by Ohio Oil Co. previous to the starting of exploration work in 1934, and for the first time in the history of California a commercial dry-gas field may soon become an important producer of crude oil and a normal oil-gas. It may not be the last time, however, as the Buttonwillow gas field of Kern County also presents a similar possibility and may, with deeper drilling, produce crude oil below the present productive gas horizons. Standard Oil Co. appears to have disproved the existence of commercial crude oil production in the Semi-Tropic gas field, about 8 miles north of the Buttonwillow gas field, but additional exploratory drilling appears justified as Standard's deep test, No. 2 Randolph in section 14-27-23, showed some oil below the present gas zones. This test was carried down to 9,536 feet but was plugged back to 7,620 feet and a production test made before abandonment.

Important Discoveries

The discovery of a substantial thickness of oil sand in the Buena Vista Lake district enhances the probability of finding similar production with deeper drilling in the Elk Hills and Lost Hills fields and in the Buena Vista Hills section of the Midway-Sunset field. No real deep tests have been drilled in the Elk Hills field, although Standard Oil Co. drilled a well in section 31-30-25 to 8,404 feet and abandoned it several years ago. This well only went into the upper Miocene about 1,000 feet, and is not a conclusive test. In 1934 General Petroleum Corp. drilled to 11,377 feet in the northern edge of the South Belridge field with negative results, although some oil was found in the bottom of the hole before mechanical trouble developed. This well may not have been located favorably with respect to structure. No real deep tests have been drilled in the Lost Hills field but operators will eventually begin deep exploration.



Ohio Oil Co. has cored 86 feet of the Stevens oil sand in a deep test in the Buena Vista Lake gas field and Union Oil Co. has cored an oil sand in a wildcat about midway between Mountain View and Arvin

Additional Fields Expected

As a result of consistent exploration work there appears to be four rather well-defined lines of folding in San Joaquin Basin with a northwest to southeast trend and being more or less parallel. The first trend was noted following the discovery of Ten Section field by Shell Oil Co. and subsequent discovery of the Canal field by Ohio Oil Co. This line of folding is recognized as the Buttonwillow-Ten Section line of sheering. The second line of folding was recognized following discovery of the Greeley field by Standard Oil Co. and subsequent discovery of the Rio Bravo field by Union Oil Co. This is known as the Semi-Tropic to Greeley line of folding. The third possible line of folding was indicated by completion of Continental Oil Co. discovery well in the Wasco district of Kern County as this area is in a direct line with Fruitvale and Mountain View and may be an extension of the Bear Mountain sheer zone as postulated several years ago by J. E. Eaton. A fourth line of folding appears to have been found by Ohio Oil Co. and pending developments will be tentatively designated as the Lost Hills-Buena Vista Lake trend.

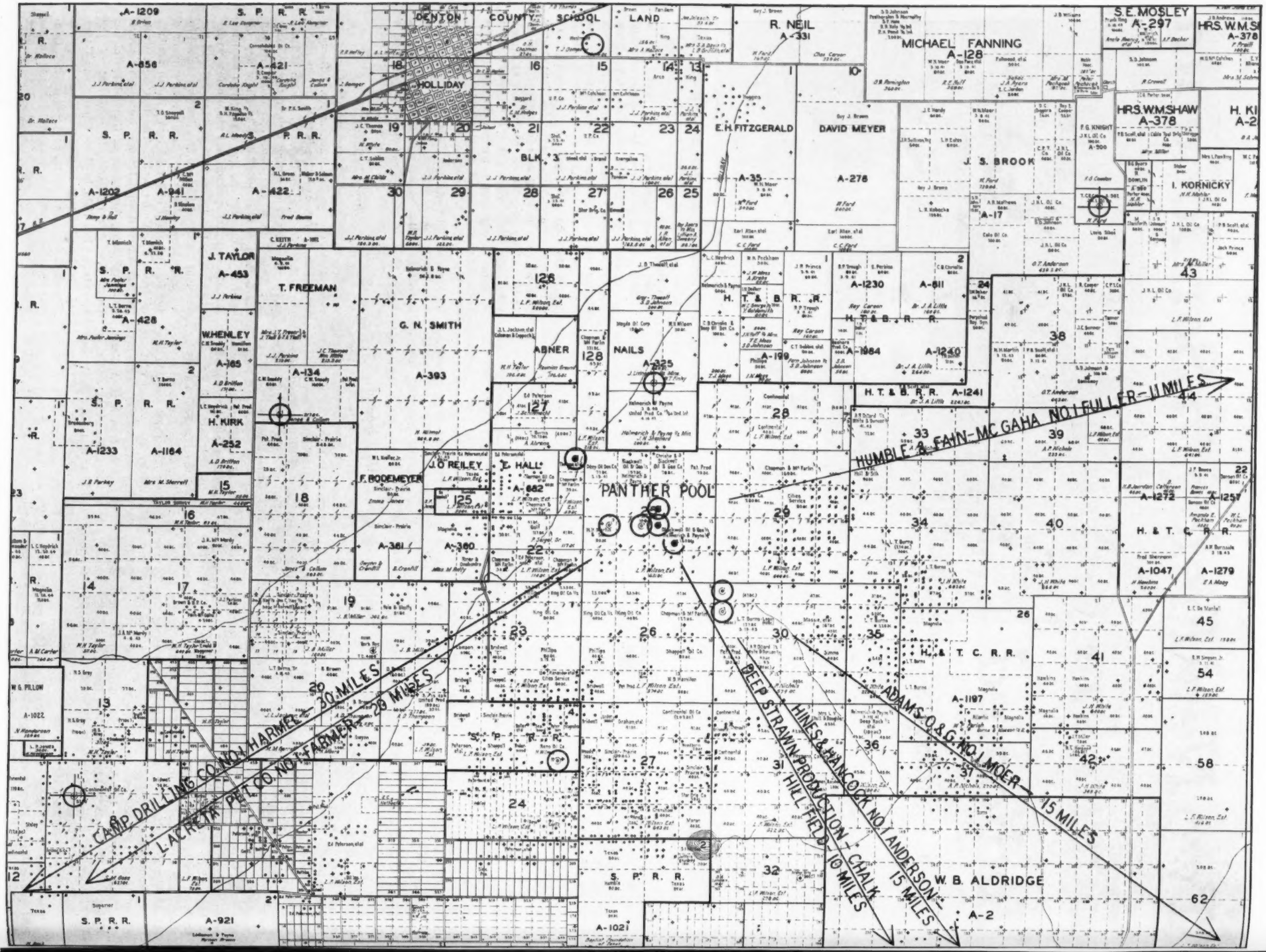
Ohio Oil Co., which has cored 86 feet of actual net oil sand in its Buena Vista Lake wildcat has been exceptionally successful in its California wildcat exploratory work as it discovered the Playa Del Rey field in December, 1929, the Canal field in December, 1937, and the Buena Vista Lake gas field in August, 1934. Its No. 8-A Kern County Land with 86 feet of oil sand indicates probable existence of commercial oil production at Buena Vista Lake and a wildcat in the Willows district of Glenn County blew out a few months ago and destroyed the well and equipment by cratering. This well showed so much kick and with the volume averaging around 75,000,000 feet daily it is generally conceded that Ohio Oil Co. No. 1-A Willard in section 18-20-2, a second test now being drilled at Willows, will result in discovery of a new commercial dry-gas field within a few weeks.

Arvin Wildcat

Union Oil Co. has cored about 125 feet of oil sand in the Chanac formation in No. 1 Berry, a wildcat in the Arvin section in the extreme southern end of San Joaquin Basin, in section 15-31-29, and preparations are under way to make an early test. This wildcat was carried to 6,812 feet but the bottom of the hole failed to show any oil sand or encouragement and a plug has been set at 6,150 feet. A formation test made a few weeks ago with bottom of the hole at 6,130 feet and the tester at 5,920-97 feet open 30 minutes resulted in a steady blow of gas and the recovery showed 400 feet of gassy oily mud and a small amount of free oil with no water. The test next week will be watched with interest because of previous wildcatting operations of General Petroleum Corp. The Arvin district is southeast of the Mountain View field in Kern County and Union Oil Co. No. 1 Berry is about midway between Mountain View and Arvin. In Arvin district, General Petroleum completed a small pumper on the Houchin lease in section 27-31-29, at present pumping 90 bbls. of 30.8 oil.

Holliday District, Northern Archer County, Texas

Heydrick Mapping Co., Wichita Falls


DENTON COUNTY SCHOOL LAND
HOLLIDAY
R. NEIL A-331
MICHAEL FANNING A-128
S.E. MOSLEY A-297
HRS. W.M.S. A-378
E.H. FITZGERALD
DAVID MEYER
J. S. BROOK
HRS. W.M. SHAW A-378
I. KORNICKY
J. TAYLOR A-453
T. FREEMAN
G. N. SMITH A-393
WHENLEY A-165
H. KIRK A-252
ABNER
NAILS A-325
H. T. & B. R. R.
H. T. & B. R. R. A-1241
HUMBLE & FAIN-MC GAHA NO.1 FULLER - 11 MILES
J.O. REILEY
J. HALL A-882
F. BODEMEYER
PANTHER POOL
CAMP DRILLING CO. NO. 1 HARMER - 30 MILES
LACRETA PET. CO. NO. 1 FARMER - 28 MILES
DEEP STRAWN PRODUCTION - CHALK HILL FIELD - 10 MILES
HINES & HANCOCK NO. 1 ANDERSON - 15 MILES
ADAMS O & G NO. 1 MOER - 15 MILES
H. & T. C. R. R.
W. B. ALDRIDGE A-2
S. P. R. R.

A-1021

A-921

S. P. R. R.

AL

Deep Wildcats in Panther Pool Present Center of Interest

By MITCHELL TUCKER

WICHITA FALLS, Tex., May 9.—Although it is impossible to detract from the importance of the K.M.A. field, which now has over 200 drilling operations, much of the wildcat interest and activity has turned southward into Archer County in search of other Strawn (Pennsylvanian) production.

The 4-well Panther pool in north central Archer County, about 9 miles southwest of the southern limits of K.M.A. production, is the present center around which 10 deep wildcats are now drilling to the K.M.A. lime (Lower Strawn). This Panther territory was formerly known as the shallow Holliday district. The accompanying map indicates the present producers, dry holes, and exploratory wells in the area, with arrows pointing outward from the Panther field to important outposts.

Panther Pool

All of these wells are seeking to uncover accumulation of oil in stratigraphic traps or local folded features in the Lower Strawn along the southern end of the Electra arch. Strawn production was first found near the town of Strawn in Palo Pinto County about 20 years ago. Since that time it has been found productive in 25 fields along the Bend arch, all of which have been in the lower one-half of the district, in Coleman, Brown, Eastland, Commanche, Stevens, Palo Pinto, South Young, and Jack counties. The largest Strawn field prior to the discovery of K.M.A. was the Bryson pool in southwestern Jack County. The K.M.A. and Panther fields were the first to prove large Strawn production in the northern portion of the Bend arch territory, and have been responsible for the present wildcat campaign to the deeper levels.

At present, the 4-well Panther pool is proven for about 1 mile in length running in a northwest-southeast direction. Producing wells are allowed 100 bbls. per day under the present schedule, as the field is set up separate from K.M.A. Only two of the four wells shown are actually on production, one is testing and preparing to gauge, and the other is testing the Ordovician level after finding well saturated sand above the Strawn level. A 1-mile southeast post is drilling near the testing point. It will be noted that dry holes, 1 mile due north, and the other about 3 miles west by north, serve to define the productive limits in those directions at this early stage of development.

Important Wildcats

The southeasternmost producer, Blackwell Oil & Gas Co.-Helmerich & Payne, Inc., No. 2 L. F. Wilson, found saturation in the Strawn, but drilled to 5,300 feet to satisfy a deep drilling obligation. In doing so, evidence of a possible commercial producer was noted in a formation near the Ordovician contact point, and this zone is now being tested. Although considerable oil was noted while drilling this lower section, operators are being forced to swab to thoroughly test its possibilities.

Five miles south of Wichita Falls, and eleven miles east of Panther, Fain-McGaha and Humble Oil & Refining Co. No. 1 Fuller, section 12, H.& T.C. Survey, is nearing 5,000 feet, with some reported evidence of structure and oil shows.

Fifteen miles to the southwest of Panther, Adams Oil & Gas Co.'s first wildcat in the North Texas district, No. 1 Moer, section 21, C.&P. Survey, is drilling below 4,200 feet after having logged some favorable showings of oil in the Strawn. After reaching contract depth of 5,000 feet, the upper levels are to be tested. This well is just west of the town of Scotland.

Two important deep wildcats are nearing the testing stage 20 and 30 miles southeast of Panther, near the town of Megarel.

Arrangements are being made to deepen a shallow producer to the Strawn about 4 miles due north of Panther, and 1 mile east of Holliday in northern Archer County.

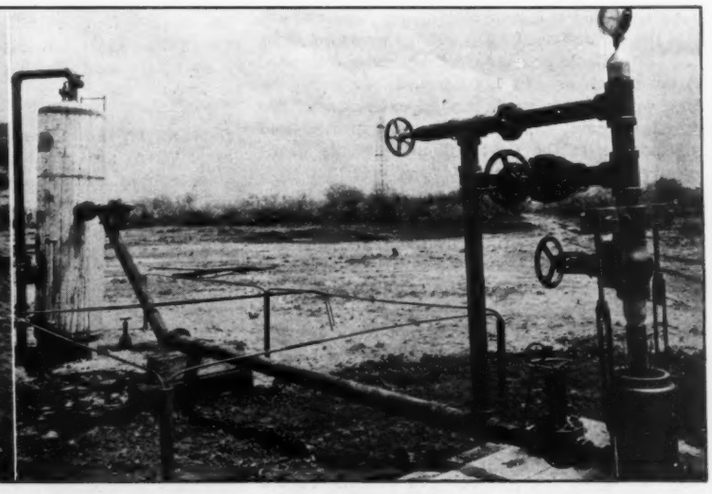
Formal District Hearing

A formal hearing was conducted on the deep development of the North Texas district by V. E. Cottingham, director of production for the Railroad Commission of Texas, on May 2, in Wichita Falls. Evidence was accepted for the purpose of setting up the Panther field as a separate reservoir from K.M.A. proper. No contradictory evidence was presented.

Operators in the new area agreed that the proration and operating rules for K.M.A. were entirely applicable and suitable at Panther, due to the close similarity of the two Strawn fields.

The matter of spacing in both fields was discussed, and it was generally agreed the 10-acre well unit, with maximum of 20 acres for proration purposes, was satisfactory and should be continued. The 10-acre pattern was thought to be flexible, and not one that would interfere with any pattern used in future deeper or shallower drilling. Drilling costs have been reduced from the original average of about $25,000 to from $18.-000 to $20,000, largely due to improved completion practices, quicker drilling time, drilling of smaller diameter holes, and a more thorough knowledge of the section to be drilled. This has to some extent served to discourage the early efforts to drill up the 80-square-mile area on a 20-acre pattern instead of a 10-acre plan. It is now apparent the greater part of the field will assume the 10-acre pattern. The present high allowable

Wellhead hookup at K.M.A., showing wells produced through restricted flow bean, pinching them in to where daily allowable will be made by continuous flow



Wellhead and separator hookup at the discovery well in the Panther pool, Blackwell Oil & Gas and Helmerich & Payne, Inc., No. 1 Wilson. (Formerly Hull & Silk No. 1 Wilson)

of 58 bbls. per day permits a payout of drilling costs in less than one year, with the high gravity crude selling at $1.20 per barrel. Some of the high lease payments will require a considerably longer production period to make complete payout on the investment.

K.M.A. Divisions

Like most fields of large areal extent, conditions vary so much over the entire structure that K.M.A. has come to be considered in separate parts or divisions. Structure, stratigraphy, density of well-spacing, and pressure differentials, constitute the greatest differences of the individual areas within this 50,000-acre field. Table 1 gives up-to-date statistics on the K.M.A. field.

Geologically, the K.M.A. structure is now known to be in the form of a stratigraphic trap along the southern end of the Electra arch. Accumulation on the east side is due almost entirely to porosity in the oolitic lime section deposited in the slight folds of the trap along the southern flank of the arch. Structure plays practically no part in the productivity of wells in this portion of the field, and the occurrence of porous and saturated zones varies considerably from well to well in certain portions of the field. Saturation is found almost entirely in an oolitic lime section above the shale break and the sandy lime zone which contains most of the oil on the west side of the field. Acidization is used extensively in completing this type of well, although shooting has been beneficial in several instances. Gas volumes and pressures are low, and wells are going on the pump in the east field at a steady rate. Thirty of the present 41 pumping wells are on the east side.

The Kemp City area, in the south central part of the field, where the discovery well was drilled about seven years ago, also possesses individual characteristics which tend to identify it from the rest of the field. Due to the early discovery near Kemp City, and because acreage ownership is broken up into smaller tracts than any other area, this is now the most densely drilled acreage in the pool. Much of it is already drilled to one well on 10 acres, and in some few cases less. Almost one-half of the present producers may be considered to be in the Kemp City area. Only slight evidence of structure has been observed here by drilling. The thickness of the saturated oolitic lime section is greater than on the extreme east side, and as a rule better wells are completed.

It is on the Munger lease near Kemp City that Deep Oil Development Co. is operating its gasoline and recycling plant, and is now introducing about 225,000 feet of residue gas per day back into the formation at 1,175 pounds pressure. Original bottom-hole pressure in this area is estimated to have been around 1,600 pounds. Only one intake well is now used, but an extension of the pressure maintenance project is expected and this portion of the field will undoubtedly profit greatly from the program.

To the west, in what is now known as the Kadane area, a pronounced plunging anticlinal structure has been defined by the drill. Some saturation is found in the oolitic lime section which produces to the east, but the prolific saturation is in a sand or sandy lime section (separated from the oolitic lime by a 20- to 30-foot shale break). Pressures up to 1,800 pounds are observed here, and west side wells are drilled and completed quite differently from those in the low-pressure area. Shooting is resorted to largely in the sand or sandy lime, and higher initial potentials are established here than any other portion of the field. All wells are flowing, and a much longer flowing life and higher ultimate recovery per acre is indicated for the west side leases.

Some evidence of structural folding has also been noted in the sparsely drilled portion of the field north of the Wichita River which runs through about the center of the proven area. Sufficient wells have not been drilled there to indicate their characteristics, but the north field will probably prove to be another separate subdivision of the reservoir.

Decline in Production Rate

Over a year has elapsed since the completion of Petroleum Producers No. 79 Munger, in the Kemp City area, which started the activity off at its fast pace after the known deep production had only been tapped by nine producers. This one-year production record gives a tentative idea of the performance of K.M.A. Strawn producers, their probable future flowing life, and productivity.

TABLE 1—STATISTICS OF K.M.A. FIELD

(As of May 7, 1938)

Present deep producing wells		364
Present actual drilling wells	105	
Present rigging up wells	40	
Present wells digging pits	15	
Present wells in process of completion	71	
Present locations	60	
Total development activity		291
Present flowing wells		323
Present pumping wells		41
Present intake wells for pressure maintenance		1
Daily allowable, May 1 (not including Sunday shutdown), barrels		18,021
Total daily allowable granted to well units, barrels		8,317
Daily grant to each well unit, barrels		29
Total daily allowable granted to acreage, barrels		9,704
Barrels allowable per acre under acreage factor		1.45
Top allowable for one well on 20-acre tract		58
Estimated proven acres in field		40-50,000
Present producing acres		6,310
Average number of acres per completed well		17.4
Number of producing leases		241
Number of independent operators owning production		128
Number of major operators owning production		4
Number of producing wells owned by major companies		16
Number of wells drilling or rigging up by majors		18
Accumulated production to May 1, bbls.		2,120,500

Upon completion, most wells flow naturally with large volumes of gas. After the first head of gas has been produced, ratios decline rapidly to the average of 1,000 feet per barrel or less. Rather large three-hour potentials are established, but it is highly questionable whether this rate could be long maintained. Since the removal of the potential factor in the allocation formula, the taking of fictitious potentials has been eliminated. Subsequent tests indicate the production rate declines rapidly to about 20 to 30 per cent of the original potential. From that point, the rate is well sustained. A rather short average flowing life, with a long sustained pumping life, is indicated. The short flowing life is particularly evident in the east side wells, where gas pressure is lower.

At present there are 41 wells pumping in the field, all on the east side or in the Kemp City area. There are 8 old-type standard rigs (early completions), 30 are using individual pumping units, and 3 operate off backside-crank arrangements. The use of heavy-duty pumping units, gas, gasoline or diesel powered, with one or possibly two-well backside-crank hookups in 10-acre drilled portions of the field, appears to be the accepted type of future pumping equipment.

Periodic bottom-hole pressures are being taken in the field, but no data regarding declines in reservoir pressure with respect to recovery are available yet. K.M.A. has shown itself to be wholly a gas drive field up to the present. It is important to note that even in the face of declining pressures, no actual water encroachment has been observed to indicate a hydraulic force or water drive on any side of the field. Only in a few rare instances have wells been drilled into water, and these were successively plugged back and completed as clean oil producers. None of the other Strawn fields in North Central Texas has developed an effective water drive. The opinion has been expressed freely that a hydraulic force would be very beneficial to the field in prolonging flowing life, and in increasing recovery.

EXPOSITION

(Continued from Page 87)

ing special programs. May 20 also has been designated as their day at the exposition, the transport men attending in a group. They will be guests of Fred E. Cooper at his plant on the Sand Springs Road west of Tulsa at a barbecue and show at noon that day, and that night they will attend a banquet at the Mayo Hotel.

Additional Events

An all-day safety contest will be held on the exposition grounds May 20, culminating in a banquet at the Tulsa Building that night, when safety meet awards will be presented the winners. It was indicated that 30 first aid teams would participate in the contests. J. D. McCamey, safety director for Carter Oil Co., is chairman of the safety day committee.

Other special events will include entertainment of young oil men by the Tulsa Junior Chamber of Commerce; a Press party for visiting oil editors and writers; luncheons for various oil groups, with the Civitan, Kiwanis, Traffic, Rotary, American Business, Cooperative, Engineers, Lions, Optimist, Cosmopolitan and Hi-Twelve clubs and the Tulsa Geological Society; private parties for the Old Timers and various other groups; a golf tournament, and a rodeo each night.

The fifteenth anniversary of the oil show will be observed with a program being arranged by a committee headed by L. B. Jackson, first president of the exposition.

It is an imposing array of special events—but, in the final analysis, this is primarily an industrial show and it is among the industrial exhibits that the majority of oil men who attend the exposition will spend the greater part of their time, each according to his individual interests.

In order adequately to house and display the exhibits, the exposition has just concluded a $250,000 new building program, thus increasing the exhibit space by 72,065 square feet, not including the 13,804 square feet of exhibit space in the Hall of Science. The size of the Oklahoma Building was doubled; a new Kansas Building, new office building and new cafeteria building were erected and size of the grounds enlarged—all combining to make the 1938 exposition 50 per cent larger than its predecessors.

N.P.A. Department of Manufacture Annual Meeting at Bradford

The annual meeting of the department of manufacture of the National Petroleum Association will be held May 25 and 26 at Bradford, Pa. The Bradford group will act as hosts and open their plants to the group.

Obituaries

CHARLES EDWARD CAMPBELL, 69, manager of the Black, Sivalls & Bryson, Inc., tank factory at Bartlesville, Okla., for 34 years, died May 5.

JAMES HARRY WESTCOTT, 65, of Larchmont, N. Y., author of "Oil—Its Conservation and Waste," died recently. He had traveled extensively analyzing oil properties and products.

WELFARE OF NATURAL GASOLINE INDUSTRY AFFECTED FROM OUTSIDE

J. A. La Fortune, president of the Natural Gasoline Association of America, vice president of Warren Petroleum Corp.

By J. A. La FORTUNE
Warren Petroleum Corp.

Some time ago when I began the preparation of this president's address, I read a number of those made by my predecessors before this organization and I noted that they all followed a similar trend, that of reporting the broad scope of association activities. This is not peculiar to our own industry but is the usual function of the president of any organization, to review the work of the group which he represents, to sum up the year's progress and to point out the deficiencies.

I would like to depart somewhat from that precedent, however, and while I shall not omit any of these usual functions, I would like to stress some other matters which seem to me to be equally pressing. I have reference to the trends in industrial relations, legislation sponsoring these trends and the position in which all business men find themselves these days with reference to these problems. We in the natural gasoline industry are as deeply involved as any branch of the petroleum or any other industry, and it seems entirely appropriate that we should discuss them among ourselves.

During the course of the past twelve months we have seen some very startling events, both here and abroad, events that will go to make interesting reading in the years to come. It would be a colossal task to try and cover the foremost events which have taken place and which affect all of us to varying degrees. That considerable harm has been done by our present national policy of abetting turmoil within the industrial world cannot be denied. For generations industry had been the dominating and controlling factor in our national progress, and then the great depression of 1929 engulfed the country and the foundation was laid for the politicians and demagogues to assume control. They immediately began the enactment of many new laws and pet schemes to rid us forever of panics and hard times. Now, after six years of regimentation, price fixing, arraying class against class, "pump priming" and a lot of other schemes which promised all and did all, but one thing, that was to bring the revival of prosperity and confidence which all of us hoped for. Regardless of how we feel politically it cannot be denied that the law of self-preservation comes first and, further, if we all are to continue to have the right of life, liberty and the pursuit of happiness, then we must hold to those principles and practices which have proven constructive and practical in the past.

Seriously, gentlemen, when we ponder on such astonishing paradoxes as we have witnessed during the past few years, the inconsistencies of official acts and public sentiment, we must wonder if the mental attitude of the American people has suffered a terrible dislocation.

I do not believe that the American people have changed but I do think that the natural trend of thought for many people has been perverted temporarily by such terms as "economic royalists," "entrenched greed" and "monopolists." Is it any wonder that there is suspicion of all business and industry among those whose very livelihood depends on the success of that business or industry? Isn't it logical that the normal loyalties of employes should be shaken by such inflammatory and class baiting tirades by men in high office? The unrest thus created has done untold harm to all industry and to the country as a whole. It will take years of effort on the part of every employer to restore those loyalties and this can only be done by consistently and patiently proving that there is a limit to what an employer can pay in wages and in taxes at the same time. Beyond that limit he will not be able to meet any payroll at all. I sincerely believe that we must conscientiously show that the slogan so often repeated these days, "What's good for business is good for you," is nothing but the truth.

Fortunately, and only in the past month, a saner view is being taken of the vast importance that industry plays in our daily lives. People are beginning to realize that business must be protected and given every opportunity to expand for they are learning that we cannot be legislated or taxed into prosperity. Business has awakened to its responsibilities and, with any degree of assurance that it will not be molested by stringent rules and regulations, will move forward and bring about that which only business can bring, the sense of security and contentment that comes with jobs.

I do not wish to leave the impression that I think business can do no wrong or that there are no evils in industry. My thought is that they are fundamentally sound and that to them we owe our position as the richest and most independent nation in the world. Existing evil in one industry or business is no reason for condemning all business or the whole profit system. Comb out the evil if possible but retain the sound principles which have been responsible for our progress to date.

We are part of an industry which has been bitterly attacked by politicians, brain trusters and men who not only do not help support the government by paying taxes, but who, with some exceptions, have never made a success of their own affairs. And why is the oil industry so attacked? Is it because through our business efforts and technological advances we have been able to give the consumer better products each year at less cost to him or because we dared to make a legitimate profit while doing it. Would they break us up into small units merely because the oil industry employs a million men, and pays them over a billion in wages? Perhaps we are too big and too efficient but I doubt that, because from that bigness and efficiency have come the greatest advantages to the general public.

You are all tired of the word, "taxes," though fortunately it has now reached the point of definite irritation, so I will not burden you with any thoughts on the subject. However, I would like to read from an editorial of Merle Thorpe, which to my mind sums up the whole matter in its briefest form.

"As more and more capital is taken from the

Opens N.G.A.A. Sessions

J. W. Newton, vice president of the Magnolia Petroleum Co., in charge of refineries

national pool of productive labor to be spent on unproductive overhead, there is, by simple arithmetic, less and less for capital investment which creates and provides continuous employment of men. There are those who believe that the phenomenal progress of the American people has been due to the fact that with little government and, therefore little expense compared to older nations, large amounts were available for new, men-employing enterprises."

Unquestionably that is true, but unfortunately we seem to be pursuing the opposite course at the present time.

You may rightly ask what we can do about all this. You know the answer to that as well as I do, and that is to take a greater interest in your local and national affairs. Know what is going on, know who is doing what and for what purpose, and then above all other things, find out how it is done. If you are not mad enough by that time to go out and find something to do about it, it's your own fault and you should stop saying anything about it.

Turning now to association affairs, the year of 1937-1938 has been one of notable achievement in several important undertakings. I refer especially to the Pawhuska Road Tests, a research project in which we were joined by the Western Petroleum Refiners Association. This project was an outgrowth of several others sponsored by the N.G.A.A. in years past to prove the inherent value of natural gasoline as a component part of motor fuel. You will recall that some 12 years ago the association began the study of fitting fuels to engines, a study concerned with modifying the volatility of fuels to improve the performance of existing cars of the period. Following this early phase we undertook to suggest modifications in cars to improve the performance obtainable from the increased volatility of available fuels. We continued along that line until last summer when we began the elaborate series of road experiments which are now known as the Pawhuska road tests.

Beginning with the sincere belief that inadequate fuel systems in the cars of today impose restrictions on gasoline raw materials, we undertook to prove that these conclusions were correct and that the losses, both in volume and octane number from such systems, were detrimental to both the refining and natural gasoline industries. That we did prove these things beyond any doubt is evidenced by a paper given before the W.P.R.A. at its recent annual meeting by W. W. Scheumann, Cities Service Oil Co., who was a member of the joint steering committee in charge of the test series. In summing up the economic results of this work, Mr. Scheumann drew the following conclusions:

"From the standpoint of permissible vapor pressures, if the poorest car were improved to equal the best, the refining industry could utilize additional butane in motor fuel, amounting to 1.22 per cent of the annual motor fuel requirements. It is estimated this would net the industry at least $16,000,000 annually, and in addition, decrease the lead expense by $1,800,000. Fuel losses from rear tanks and carburetor vents will run from 4 to 7 per cent in hot weather, and higher, depending upon the type of driving. In hot weather this accounts for losses of 1.1 to 2.0 octane numbers and will average at least .54 octane numbers on an annual basis, valued at approximately $2,000,000. An annual fuel loss of 1.96 per cent from the car costs the consumer at least $65,000,000."

I am told by those in charge of the tests that these startling figures are definitely on the conservative side and if this is true then it is decidedly to our interest to see the conditions which cause them be remedied. A waste of volatile fractions from the motor car merely to give that car trouble-free operation not only places another handicap on the most valuable asset of our product, its volatility, but puts a needless mortgage on our future. The same can be said of octane number losses.

Association Ramrod

W. F. Lowe, secretary of N.G.A.A.

It is hardly my place to go further into this study except to emphasize the fact that our money is well spent in this type of research and the information will be valuable to the automotive engineers. Tomorrow you will hear the whole subject discussed when the final report of the Pawhuska road tests is presented and the methods and results are discussed by representatives of the automotive industry. Much has been accomplished in this field but I do not wish to leave the impression that we have completed all that should be done. I urge that the association continue the work until the desired changes in automotive design have been made.

Before leaving this subject I wish to extend to Mr. T. W. Legatski of the Phillips Petroleum Co., and members of his committee the sincere thanks of this association for the splendid work done during and since these road tests. Mr. Legatski served as chairman of the joint steering committee and during the entire period much of the heavy desk work has been his. The complete report which member companies of both associations will shortly receive was compiled under his direction and I'm sure that when you see this voluminous work you will agree that there must have been many headaches in its compilation. We wish also to express our appreciation to the Western Petroleum Refiners Association for their cooperation and we fully realize that without it progress might have been slower and the desired results delayed. I hope that we may join with them again in projects of this nature since our goals have much in common.

The Marketing Phase

Marketing of natural gasoline during the past year witnessed a decided improvement, an increased market abroad and a slight increase in price for our product. Due to the increased volatility demand by the consuming public over the entire world, natural gasoline was used in increased quantities by at least four large companies who have been exporting this material abroad. Most of it represented an average of 18-pound Reid vapor pressure. While the exact number of cargoes is unknown, it is assumed that approximately 50 cargoes of 80,000 to 100,000 bbls. each have been moved from the Gulf Coast either to foreign countries or to the East Coast. This would represent a total of 4,500,000 bbls. In addition to full cargoes there have been thousands of barrels of natural gasoline added to crude consigned for shipment abroad. However, tankcar shipments showed no material change over the previous year, and it was generally conceded, with the single exception of one manufacturer, that all sellers of our product were free of stocks at the close of the year. In regard to contract business placed with refiners for the year 1938, it appears that the quantity already booked, at least equals that of 1937, with the further possibility that an increased amount may be called for, due to the heavy stocks of refinery gasoline which may need added volatility.

The overall picture for the Mid-Continent manufacturer this year is just fair. The price will probably be lower than in 1937, due primarily to the economic situation and a goodly supply of the product.

I would like to touch briefly on the work done by our committees which have had a busy year. The Technical committee, while studying a number of subjects, devoted much of its time to a research project concerned with the relationship of field test data to the hydrocarbon composition of wet gases. Much of this work was carried on at the University of Oklahoma under the direction of Professor R. L. Huntington, though the committee kept in intimate touch through frequent meetings. This work is not yet complete though some decidedly interesting conclusions have been drawn, and plans for continuing the project have already been made. There is reason to believe that some valuable fundamental information will be developed, and the committee is to be commended for the progress already shown.

The Gas Testing committee had an unusually active year while developing a new code for compression testing of gas to determine its gasoline content. The revised version of this code has eliminated the optional clauses of the old method, and will give more reproducible results thereby giving to the industry another, better yardstick by which its high standards can be maintained.

The Gas Contracting committee, at whose request for technical information the Technical committee undertook the study of the relationship of test data to the hydrocarbon composition of wet gases, has been continuously engaged in the study of a number of related and complex problems. In the desire to create a fair and practical answer to difficult question of by-products settlement, where such settlement is necessary, it has studied a large number of suggestions, and the various clauses which are now used by companies in the Mid-Continent area. The results of these studies will be reported later on this program by James W. Cowles, chairman of that committee, and I am sure you will be interested. It is felt that many gas sellers as well as buyers do not fully appreciate the difficulties involved in such a question. This lack of understanding is apparent in the position which some individuals and some companies take when they criticize the delay in the creation and adoption of a by-products clause. Lack of universal market for such products, lack of anything approaching a posted price, and the fact that sale of the product is restricted to certain areas and to only the more modern plants, are only a few of the factors which help to make the problem more complex. There are still many unknowns which will have to be worked out before an equitable clause of universal application can be advanced as a sound basis for such transactions. The association appeals to non-member companies of the entire industry to aid us in this study. We want and need your cooperation and we sincerely hope that we can have it.

Proposed Oil Code Up in Louisiana

By GEORGE WEBER

BATON ROUGE, La., May 9.—Louisiana's new proposed mineral code this week progressed one step farther toward possible enactment. Following nearly two years of consideration, drafting and discussion, the work was transmitted on Monday by Governor Leche to the legislative committee as the legislature convened for its biennial session.

The draft, which comprises a complete codification of all oil, gas and mineral laws, was provided under Act 170 of the legislature of 1936. Adopted as an amendment at the general election of 1936, it directed the governor to appoint a commission to prepare a draft for "A Code of the Oil, Gas and Mineral Laws of the State of Louisiana."

The code commission named was headed by Sidney L. Herold as chairman, and included W. C. Feazel, L. H. Perez, Arthur Provost and W. G. Rankin. The code as drafted was submitted to the governor on January 1, 1938.

Essentially, the work consists of a complete restatement of not only all existing mineral statutes but of the jurisprudence and interpretations of the civil code relating to private rights. Its object is the simplification and clarification of such laws. Throughout the drafting of this monumental work, the commission was guided by a strict policy of retaining the civil law background peculiar to the State of Louisiana. As such, the code represents a sincere attempt on the part of its framers to restate the rules governing the mineral industry of the state as they interpret the rights and duties of parties under the civil code, uninterfered with by decisions of the Supreme Court of Louisiana. Consequently, it may be considered as arising directly from the basic civil code, and as a part of the civil code itself, restricted in its application to the private ownership, leasing, selling and mortgaging of oil, gas and other minerals.

Controlling Features

During initial consideration of the new draft, the members of the commission were in agreement that the whole law on oil and gas, comprising the laws of ownership of land, mineral rights and leases, revolved about one central point, the definition of ownership.

Definition of that right, from which radiate the applications to various phases of ownership, is embodied in Article I of the code:

"Ownership being the right by which a thing belongs to someone in particular to the exclusion of all other persons, it follows that it is the incorporeal sum total of all those rights through whose exercise the thing owned may be utilized, enjoyed or disposed of, subject only to the proper exercise by the state of its police power."

Ownership being thus basically defined as a right, the ownership of land may be considered as a sum total of all incorporeal rights to all uses to which the land is subject. The exclusive rights to various uses of land, which together form the elements of perfect ownership, are capable of alienation. Therefore, they may be transferred individually in any way which the owner desires.

This lays the basis for the essential point in the proposed code. The purchaser of mineral rights to a block of land holds the right to use of the land for a particular purpose, and as such has that right in perfect ownership. Likewise, the party who acquires a mineral lease on a tract of land holds the same right, with the exception that it is subject to the terms of his lease, obligating him to certain duties in the use of this right. The essential point is, then, that the owner of mineral rights and the lessee hold in essence the same rights, excepting that the right of the lessee is that of imperfect ownership, while the right of the mineral purchaser is that of a perfect ownership.

Therefore the central idea in the code may be considered as this: that the code attempts to establish as property the right of a lessee in an oil and gas lease, and to afford the lessee every protection that the law gives to any other property, and to give to the breach of obligations against him every sanction the law gives to breach of every other obligation.

The express provisions in the code which recognize the right of the lessee to complete protection in the courts of the state have a definite bearing on the future development of oil and gas reserves in Louisiana. While providing a system of equal and practical justice among the three classes of private interests; landowners, owners of minerals and lessees, the code affords protection and encouragement to the small reputable wildcatter whose importance in discovering new fields is widely recognized. This point may be said to have the general approval of all types of owners, and of independent and major oil interests alike.

Discussion Invited

The scope of the code, and the numerous ramifications which it comprises, however, presuppose debate and variance of interpretation on minor points. Fully realizing this, the commission has welcomed discussion of the draft, and the legal staffs of oil companies operating in the state, as well as many independent operators, and dealers in mineral securities, have given it close study.

The flaws which are practically inevitable in such a complicated work when prepared by a few men, have been given conscientious criticism, and suggestions for rewording in some cases have been offered. As a result of these, and of further study by the commission, that body has drawn up several amendments concerned mainly with more concise wording and clearer construction. The amendments are being recommended to the legislative committee for consideration.

Another factor which invites debate is the drafting of rules which have been the subject of inconsistencies in past judicial decisions. In some cases, the commission has written into the code its own views where it sincerely believed that judicial interpretation and application of the civil code as applied to mineral rights has been erroneous.

This responsibility was assumed when it was conceived by the drafters that certain decisions of the past had been rendered without due consideration of the essential differences which exist between certain mineral contracts and other contracts, and when the practical conditions arising in connection with the business side of the mineral industry had not been known nor realized. In cases of this type, the commission has tried to base its decisions as closely as possible on the civil code as regards private rights.

The debatable points of the code will be given full consideration in the legislature. That body is given 21 days in which to vote amendments.

The power of the commission was expressly limited in the 1936 amendment to the codification of the state law solely as it applies to private ownership. Accordingly, no recommendations which bear on the public law have been included in the draft. Taxation, state lands, conservation and similar matters were excluded from consideration.

Photo by U. S. Army Air Corps

Louisiana state capitol at Baton Rouge where legislature is to consider new mineral code. Standard of Louisiana refinery in right background

Prospect of Two-day Shut Down in Texas; May Allowables

With crude oil production allowables established for the month of May in Oklahoma, Texas, California, New Mexico, Louisiana and Arkansas, Kansas was the only prorating state that had not been given an allowable for the month by its conservation authorities up to this writing. The Kansas Corporation Commission was in session in Topeka on Tuesday. Among other problems with which it was faced are the possible shutting down of the Shell Petroleum Corp.'s Arkansas City, Kans., refinery, and the 25-cent cut in the price of crude by Kanotex Refining Co., also of Arkansas City.

Chairman Terrell, of the Railroad Commission of Texas, said on Monday evening at Austin that the commission was seriously considering Saturday and Sunday shutdowns of all Texas fields for an indefinite period, effective June 1. "We just have more oil than can be sold," he said. "Nobody will buy it, so why produce unneeded and unsalable oil? If we find we have cut too deeply we can always open up when the oil is needed." Col. Ernest O. Thompson, a member of the commission, said he joined in this proposal for its serious consideration. The matter will be discussed at the statewide hearing on May 17.

This announcement may be in preparation to oppose strong demands by East Texas independent producers that Sunday shutdowns be discontinued entirely and that revisions be made between fields to give East Texas a greater share of the market demand.

An order issued on Saturday, May 7, and signed by Corporation Commissioners Shaw and Walton, placed the allowable production in Oklahoma in May at 460,000 bbls. per day. On the day before, W. J. Armstrong, state conservation officer, recommended that the allowable be cut to 394,810 bbls. per day, or 80,910 bbls. per day under the April allowable, his object being to bring about ratable taking in the prorated fields and to stop pipe line proration. He was supported by Chairman Reford Bond of the commission, but the majority members overruled Mr. Bond and signed the order that cut the allowable only 15,000 bbls. per day. Whether their action will have any influence on the pipe line companies that are doing their own prorating remains to be seen.

The Shaw and Walton order calls for a reduction in the prorated fields from 318,843 bbls. to 303,268 bbls. per day and an increase in the unprorated fields from 156,157 bbls. to 156,732 bbls. per day. The largest cut was made in the Oklahoma City field, 5,208 bbls. per day, of which 4,645 bbls. was Wilcox sand production.

In California, where there is no conservation law affecting petroleum, the Central Committee of California Oil Producers recommended a cut in production to 624,735 bbls. per day in May and had the satisfaction of seeing production cut about 20,000 bbls. per day in the first week in the new month, but it was still 66,000 bbls. per day above the recommendation.

The objective of the central committee will not even be approached as it is based on the assumption that the Wilmington field will be reduced to 62,645 bbls. per day and Long Beach to 47,631 bbls. per day. Last week Wilmington produced 99,000 bbls. per day and Long Beach about 59,000 bbls. Operators in the Kettleman Hills field were asked to cut production from 80,000 bbls. to about 67,500 bbls. It is hardly likely that California production will fall below 675,000 bbls. a day as an average in May, and while this will be about 40,000 bbls. per day below April production, it will be far from the objective of the California conservationists.

Recent Chinese offensives in the Sino-Japanese war indicate a strong possibility that Japanese oil purchases will be increased to cope with the situation. Most of the movement of California oil to Japan during the next few months will be crude oil, although during the past few weeks there has been a tendency to take gasoline and aviation gasoline.

The Railroad Commission of Texas, after fixing the May basic allowable in that state at 1,307,914 bbls. per day, revised this upward, yielding to West Texas to the extent that on May 1 the allowable was 1,319,033 bbls., or thereabouts, an increase of more than 12,000 bbls. a day in excess of the figure set at the meeting on April 25.

The Louisiana Conservation Commission made a small reduction in allowable production when it limited the state to 251,400 bbls. per day in May. The April allowable was 252,275 bbls. per day.

The Arkansas Board of Conservation reduced the allowable of the Schuler pool to 6,924 bbls. per day, an average of 200 bbls. per well as against 550 bbls. per well previously, and reduced the Miller County Rodessa field from 15,000 bbls. per day to 8,588 bbls. daily, with a top allowable of 292 bbls. per well per day, and a reduction of the gas-oil ratio from 5,000 feet to 3,500 feet per barrel.

Kanotex Posts 25-Cent Cut in Price of High Gravity Crude

Kanotex Refining Co. of Arkansas City, Kans., on Tuesday posted a 25-cent crude price reduction effective May 10. The company buys only high gravity oil in the Wellington field in Sumner County, Kansas; in Cowley County, Kansas, and in Kay County pools in Oklahoma. The pool most affected is Wellington, which produces from 2,700 to 3,200 bbls. per day, varying in accordance with the proration schedule. Kanotex is the only oil buyer in that field. The producing company most affected is Stelbar Oil Co. in the Wellington pool, where it produces around 2,000 bbls. a day. E. B. Shawver, president of the recently organized Kansas Independent Oil and Gas Association, is president of Stelbar Oil Co.

Kanotex' new schedule starts at 34-34.9 degrees, 93 cents; with 2 cents added for each degree upward to and including 40 degrees and over at $1.05. An allowable daily production of 6,500 bbls. of crude is affected by the cut.

Station Owners Liable for Texas Chain Store Tax

AUSTIN, Tex.—The attorney general's department ruled Thursday in an opinion asked by the comptroller that the state chain store tax on filling stations handling automobile accessories was payable by the owner of the station.

The question had been raised whether the tax should be paid by the operator of the station or the owner of the merchandise sold there.

Assistant Attorney General William Brown said the intent of the law was for the person who owned, maintained or controlled the station to pay the tax.

Humble Will File Objections to N.L.R.B. Examiner's Report

HOUSTON, Tex.—J. C. Batten, National Labor Relations Board examiner, has recommended that the Humble Oil & Refining Co. "disestablish all bargaining relations" with the Employe Federation organization at the Baytown and Ingleside refineries, accusing the company of "sponsoring and dominating" the independent labor unions. The company was asked to post notices that "employes are free to join or assist in any labor organization for the purpose of collective bargaining" and that recognition of the Employes Federation had been withdrawn. It was also asked to cease "contributing to the support of the two federations."

Hines Baker, director of Humble Oil & Refining Co., who conducted its defense against the charges filed by the C.I.O. affiliated locals 333 and 316 of the International Oil Workers Union, made the following statement after reading news dispatches of the examiner's report to Edwin A. Elliott, regional N.L.R.B. director, at Fort Worth:

"We shall prepare and file our written exceptions and objections to the examiner's intermediate report, and follow with oral arguments before the board." He stated the company would have 10 days from the date the company received its copy of the report to file written objections and 30 days to file such briefs as the company cared to prepare. The N.L.R.B. is not expected to make its decision until it has studied the examiner's report and the company's exceptions and heard its arguments.

Last April employes of the company in the Baytown and Ingleside refineries voted by a large majority for the Employes Federation as the collective bargaining agency, but this organization was challenged by the Oil Workers Union as a company union, formed and dominated by the company in violation of the Wagoner Labor act.

Fall Meeting of Geologists Will Be Held in El Paso

The American Association of Petroleum Geologists will hold a fall meeting in El Paso, Tex., tentative dates being September 28 to October 3. The meeting will be under the auspices of the West Texas Geological Society.

Oklahoma Geological Survey Bulletin on Elevations

The Oklahoma Geological Survey will soon issue its first bulletin dealing with elevations in Oklahoma, according to Robert H. Dott, director. It will be Bulletin 58, entitled, "Traverse and Leveling in Southwestern Oklahoma." Reports covering other parts of the state will be issued as the information is compiled.

There has been a need for publications of this nature, Mr. Dott stated, and with greater interest in soil conservation work, flood control, planning surveys, and other types of work being done, the need is becoming greater.

THE MARKETS*

CRUDE OIL: *Kanotex Refining Co. reduced posted schedule for Oklahoma and Kansas crude 25 cents per barrel. The reduction, affecting approximately 6,000 bbls. daily, is the most important one applying to Mid-Continent crudes since 1933. The reduction was made because of the disparity between crude oil and refinery prices, a condition which is representative of the position of the nonintegrated refiner.*

REFINERY: *Improved seasonal demand for motor fuels has not aided tankcar markets, and prices are lower where any changes have been made. Natural gasoline prices reduced in Mid-Continent. Industrial fuels generally weak, with lower prices announced in California. No improvement in lubricants.*

TANK-WAGON AND POSTED DEALER: *Price-cutting spreads in gasoline retail sales with no general changes in posted dealer quotations.*

FINANCIAL: *Oil stocks move within narrow range with average levels higher than previous week. Average for 30 representative stocks for week ending May 7: High, 27.74; low, 25.83; close, 27.57. Week ending April 30: High, 27.48; low, 25.91; close, 25.88.*

*Detailed information in Market Section.

FIRST QUARTER STATEMENTS

(Carl H. Pforzheimer & Co.)

	First quarter	Net income	Earned per common share
Atlantic Refining Co.	1938	$2,048,000	$0.71
	1937	1,993,000	0.69
Barnsdall Oil Co.	1938	923,797	0.41
	1937	591,155	0.26
Continental Oil Co.	1938	1,805,197	0.38
	1937	3,691,193	0.79
Houston Oil Co.	1938	483,483	0.32
	1937	469,366	0.30
Lion Oil Ref.	1938	300,932	0.69
	1937	175,252	0.42
Phillips Pet. Co.	1938	2,314,642	0.52
	1937	5,615,637	1.26
Plymouth Oil Co.	1938	702,892	0.69
	1937	640,319	0.61
Shell Union Oil Corp.	1938	2,907,447	0.19
	1937	3,647,479	0.24
Skelly Oil Co.	1938	664,770	0.56
	1937	1,534,413	1.43
Texas Corp.	1938	6,100,000	0.56
	1937	10,800,000	1.00
Texas Pacific C. & O.	1938	240,218	0.27
	1937	220,500	0.25
Tide Water Assoc.	1938	3,250,264	0.42
	1937	3,328,303	0.38
Union Oil of Calif.	1938	2,300,000	0.49
	1937	2,200,000	0.47

the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

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Reassuring

It will be encouraging to those who are directing the efforts to bring about improved conditions in the oil industry to know that they have a highly favorable situation on the demand side.

Official reports show that total consumption of petroleum products within this country and elsewhere is running ahead of any previous year.

The Bureau of Mines summary for the first quarter of the year, issued the early part of the week, will serve to nullify all the pessimistic predictions that have been made regarding the consumption of petroleum products and once more emphasizes the exceptionally strong position of the oil industry in times of business recession.

The first quarter report shows that domestic demand for motor fuel ran two per cent ahead of the same period last year, the previous peak in domestic demand for the industry's principal money products.

With gasoline exports more than 30 per cent over last year's similar period, the total demand for motor fuel (domestic plus exports) shared by refiners in this country is four per cent greater than for the like period a year ago.

This shows that while there has been a substantial decline in new car registrations the older cars are on the highways and streets consuming the usual quantities of motor fuel. Trucks, buses and other types of commercial vehicles, the largest per unit consumers of gasoline, never occupied as strong a position in transportation as they do at this time.

Strange as it may seem, the domestic demand and total demand for kerosene, the product on which the industry was founded, also exceed first quarter shipments of any year in the history of the industry. This product, due to new uses, continues to hold an important place in the petroleum picture.

These two products combined, gasoline and kerosene, which represent approximately 55 per cent of a barrel of crude, are establishing new records in utilization.

There has been some decline in the demand for the products classed as fuel oil and lubricants, but the consumption of these products continues at the 1936 level.

Considering all these products together, the government data show that the total demand for all oils is running one per cent ahead of that at this same period last year.

While complete data on the consumption outside of this country are not available reports from representative countries and a 34 per cent gain in export shipments of crude and refined products from this country indicate that, so far this year, new peaks in demand are being established.

Thus, while many other major industries are struggling with markets that have decreased from 27 to 75 per cent, the oil industry is moving into new peaks in both domestic and world totals.

It may be asked why, with this tremendous demand, one hears so much about the necessity for curtailment of production of crude oil and the principal finished products. The answer, of course, lies in the tendency of the industry to overproduce even an expanded market.

It is recognized that the industry right now must level off its production until such time as current demand has absorbed some of the surpluses which, while small in relation to the total market, are at this time threatening the stability of the business.

This adjustment can be obtained so easily that if most industries had the same situation it would hardly be considered a problem.

Surely there can be no excuse for an industry to fail to keep its supply and demand in balance when it is so strongly supported by its customers.

Demand for Gasoline in March Up 4 Per Cent

After declining for six months, the daily average production of crude petroleum increased from 3,380,800 bbls. in February to 3,436,300 bbls. in March, according to March reports of the Bureau of Mines.

The principal feature in the state figures of production in March was the gain in Texas, in fact, daily average production outside of Texas was lower than in February. All of the major districts of Texas shared in the gain in output in March. Production in California and Oklahoma showed moderate declines, Kansas and New Mexico small declines, Louisiana a slight increase. The Louisiana Gulf Coast established another record for production. Production in Arkansas and Illinois continued to increase, as did the output of the eastern states.

The increase in output, combined with the decline in crude runs, affected the stock picture so that about 3,000,000 bbls. were added to stocks in March, compared with only about 150,000 bbls. in February.

Gasoline production was curtailed in March by reducing crude runs and by a slight drop in the yield. Shipments exceeded expectations, probably due to the general rise in freight rates effective the latter part of the month, hence the decline in supply resulted in a much smaller increase in stocks than was anticipated. The domestic demand for motor fuel in March was 41,259,000 bbls., or nearly 2 per cent higher than a year ago. Exports were 3,562,000 bbls. (nearly 50 per cent above a year ago), making total demand 4 per cent higher than in March 1937. Stocks of gasoline on March 31 totaled 92,320,000 bbls., a gain of only 40,000 bbls., compared with a normal increase of 2 or 3 million barrels.

The demand for light fuel oil declined sharply, or considerably more than the usual seasonal decrease. The yields of the three principal products (gasoline, residual fuel, and distillate fuel) all declined in March, hence the yields of others, particularly asphalt and unfinished oils, rose appreciably.

United States Supply and Demand—Crude Oil (Bbls.)

First Quarter, 1938 and 1937

FIRST QUARTER—	TOTAL SUPPLY	TOTAL DEMAND	EXCESS DEMAND	EXCESS PCT.	DOMESTIC PRODUCTION	IMPORTS	INDICATED DOMESTIC DEMAND‡	EXPORTS	STOCKS REFINABLE CRUDE MARCH 31
1938	313,740,000	310,421,000	*3,319,000	*1.0	307,193,000	6,547,000	293,019,000	17,402,000	†309,403,000
Daily average	3,486,000	3,447,000	37,000	...	3,413,000	73,000	3,256,000	193,000	.....
1937	302,254,000	293,277,000	*8,977,000	*3.0	298,464,000	3,790,000	282,768,000	10,509,000	297,486,000
Daily average	3,358,000	3,259,000	99,000	...	3,316,000	42,000	3,142,000	117,000	.....
Increase, 1938	11,486,000	17,144,000	.....	.....	8,729,000	2,757,000	10,251,000	6,893,000	11,917,000
	3.8%	5.8%	.....	.....	2.9%	73%	3.6%	65%	3%

Supply and Demand—Refinery Products—Motor Fuels (Bbls.)

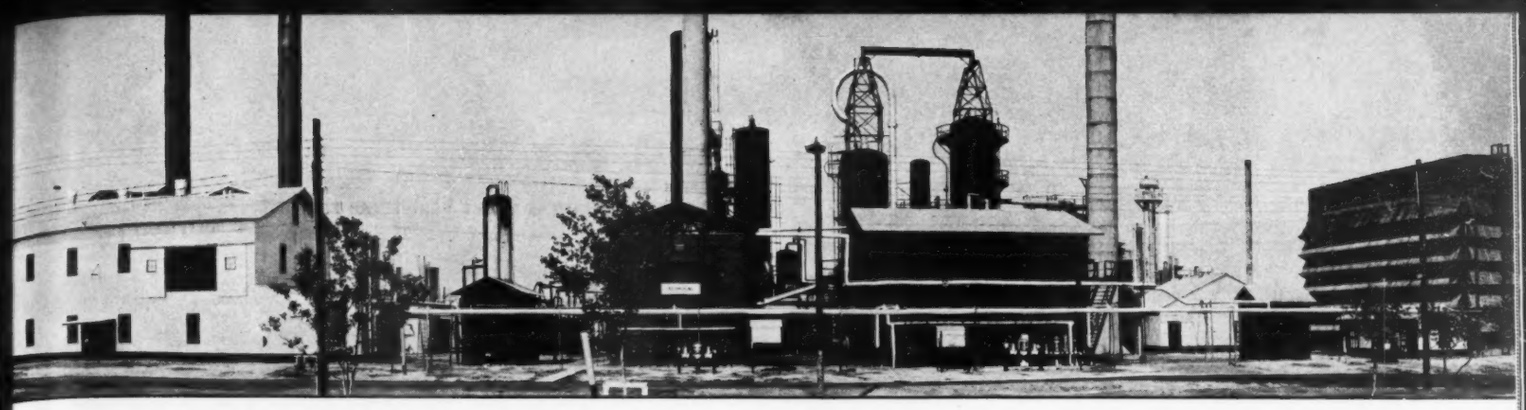
FIRST QUARTER—	TOTAL SUPPLY	TOTAL DEMAND	EXCESS DEMAND	EXCESS PCT.	DOMESTIC PRODUCTION	IMPORTS	DOMESTIC DEMAND	EXPORTS	STOCKS MARCH 31§
1938	134,795,000	118,879,000	*15,916,000	*13.4	134,795,000	.....	108,296,000	10,583,000	90,566,000
Daily average	1,497,700	1,321,000	177,000	....	1,498,000	.....	1,203,000	118,000	....
1937	132,953,000	114,301,000	*18,652,000	*16.3	132,953,000	.....	106,257,000	8,044,000	78,970,000
Daily average	1,377,000	1,270,000	207,000	...	1,477,000	.....	1,181,000	894,000	.....
Increase, 1938	1,842,000	4,578,000	.....	....	1,842,000	.....	2,031,000	2,539,000	11,596,000
	1.4%	4%	.....	....	1.4%	.....	1.9%	31.5%	14.7%
Kerosene									
1938	16,603,000	17,593,000	990,000	5.9	16,603,000	.....	15,527,000	2,066,000	6,093,000
1937	15,976,000	16,213,000	237,000	1.4	15,976,000	.....	14,309,000	1,904,000	5,396,000
Increase, 1938	627,000	1,380,000	.....	....	627,000	.....	1,218,000	162,000	697,000
	.5%	8.5%	.....	....	4%	.....	8.5%	8.5%	12.9%
Gas Oil and Residual Fuel Oil¶									
1938	122,195,000	120,466,000	*1,729,000	*1.4	117,274,000	4,921,000	109,947,000	10,519,000	105,802,000
1937	118,285,000	130,451,000	12,166,000	10.3	112,560,000	6,032,000	121,372,000	9,079,000	95,159,000
Increase, 1938	3,910,000	†9,985,000	.....	....	4,714,000	†1,111,000	†11,425,000	1,440,000	10,643,000
	3.3%	†8.3%	.....	....	4.2%	†22.5%	†10.4%	15.8%	11.1%
Gas Oil and Distillate Fuels									
1938	38,314,000	41,998,000	3,684,000	9.6	38,314,000	.....	34,780,000	7,218,000	18,882,000
1937	35,530,000	41,832,000	6,302,000	17.7	35,530,000	307,000	36,228,000	5,604,000	16,724,000
Increase, 1938	2,784,000	166,000	.....	....	2,784,000	.....	†1,448,000	1,614,000	2,158,000
	2.4%	.4%	.....	...	7.8%	.....	†4.1%	28.8%	12.9%
Residual Fuel Oils									
1938	83,881,000	78,468,000	*5,413,000	*6.9	78,960,000	4,921,000	75,167,000	3,301,000	86,920,000
1937	82,755,000	88,619,000	5,864,000	7.0	77,030,000	5,725,000	85,144,000	3,475,000	78,435,000
Increase, 1938	1,126,000	†10,151,000	.....	....	1,930,000	†804,000	†9,977,000	†174,000	8,485,000
	1.4%	†13%	.....	....	2.5%	†16.4%	†13.3%	†5.3%	10.8%
Lubricating Oils									
1938	7,950,000	7,252,000	*698,000	*9.6	7,950,000	.....	4,977,000	2,275,000	8,510,000
1937	8,240,000	7,951,000	*289,000	*3.6	8,240,000	.....	5,659,000	2,292,000	6,771,000
Increase, 1938	†290,000	†694,000	.....	....	†290,000	.....	†682,000	†17,000	1,739,000
	†3.6%	†9.5%	.....	...	†3.6%	.....	†13.7%	†.8%	25.7%
Petroleum Wax (Lbs.)									
1938	123,911,000	118,438,000	5,473,000	*4.6	116,200,000	7,711,000	80,550,000	37,888,000	150,465,000
1937	130,868,000	136,849,000	5,981,000	4.5	125,160,000	5,708,000	72,858,000	63,991,000	104,653,000
Increase, 1938	†6,957,000	†18,411,000	.....	....	†8,960,000	2,003,000	7,692,000	†26,103,000	45,812,000
	†5.6%	†15.5%	.....	....	†7.7%	35.1%	10.5%	†69%	43.8%

*Excess supply. †Decrease. ‡Crude oil only. §Includes finished and unfinished refinery gasoline and natural gasolines. ¶Gas oil and fuel oil equals gas oil and distillate fuels plus residual fuel oils. Note: Total supply equals domestic production plus imports. Total demand equals domestic demand plus exports. Data on demand for refined products are based on refinery shipments. ‖Does not include 16,069,000 bbls. of heavy oil in California.

Crude Oil Runs to Stills and Total All Oils (Bbls.)

FIRST QUARTER—	TOTAL IMPORTS§	TOTAL EXPORTS§	TOTAL CRUDE TO STILLS	PER CENT YIELD GASOLINE‡	NATURAL GASOLINE PRODUCTION	TOTAL SUPPLY ALL OILS*	TOTAL DEMAND ALL OILS*	STOCKS ALL OILS MARCH 31*
1938	12,673,000	43,199,000	281,964,000	46.6	12,551,000	332,839,000	308,596,000	588,229,000
Daily average	140,800	479,000	3,133,000	...	139,000	3,698,000	3,429,000	.....
1937	11,276,000	32,254,000	273,563,000	47.2	11,205,000	321,674,000	306,178,000	534,142,000
Daily average	125,000	358,000	3,039,000	...	124,000	3,574,000	3,402,000	.....
Increase, 1938	1,397,000	10,945,000	8,401,000	...	1,346,000	11,165,000	2,418,000	54,087,000
	12.4%	34%	3.1%	...	12%	3.4%	.8%	10.1%

*Total all oils includes crude and refined products, natural gasoline and benzol. †Decrease. ‡Includes natural gasoline blended at refineries. §Includes crude oil and refinery products. In case of imports includes receipts in bond and for domestic use. All data based on Bureau of Mines reports.



The 6,000-bbl. refinery of Danciger Oil & Refineries, Inc., at Longview incorporates modern cracking and reforming in the production of high octane gasoline

Fewer But Better Refineries in the East Texas Field Today

By GEORGE WEBER

KILGORE, Tex., May 8.—Refining in the East Texas field has been a thoroughly discussed topic for a number of years. Anyone appreciably informed on the history of the field has heard of that hectic period when the so-called "tea-kettle" plants ran millions of barrels of East Texas crude. It is surprising, however, that the general conception of an East Texas refinery as it exists today has not improved in proportion to the vast change which has come about in the local industry.

East Texas now has some of the most modern small refineries to be found anywhere in the country. The number has decreased considerably, and those plants which have survived curtailed production and advanced crude prices have a record of reputable operation and quality production. Over the past four years several millions of dollars have been invested in these plants. Yet, despite the evolution of East Texas refining from a fly-by-night, junk-plant caliber to the present day stable and well-equipped industry, the operators in that area are probably the greatest victims of the recent economic set-backs which refining has suffered.

At the present time, refining in the field is limited to a total of 16 plants which are in operating condition (see Table 1). Of these, 11 are active, with indications that two additional plants may be reopened in the near future. The total rated crude capacity of all plants in the field is 72,800 bbls. daily. Cracking capacity totals 34,300 bbls. daily, and 12 of the 16 plants are equipped with cracking units. The average crude capacity is 4,550 bbls., and individual plants range in size from 2,000 to 10,000 bbls. per day.

When in active operation, the East Texas refining industry employs over 550 men within the plants and creates many additional jobs in the crude gathering, transportation and marketing divisions. The monthly payroll exceeds $75,000 among refinery labor. Total investment in the plants now in operating condition is estimated at $6,500,000.

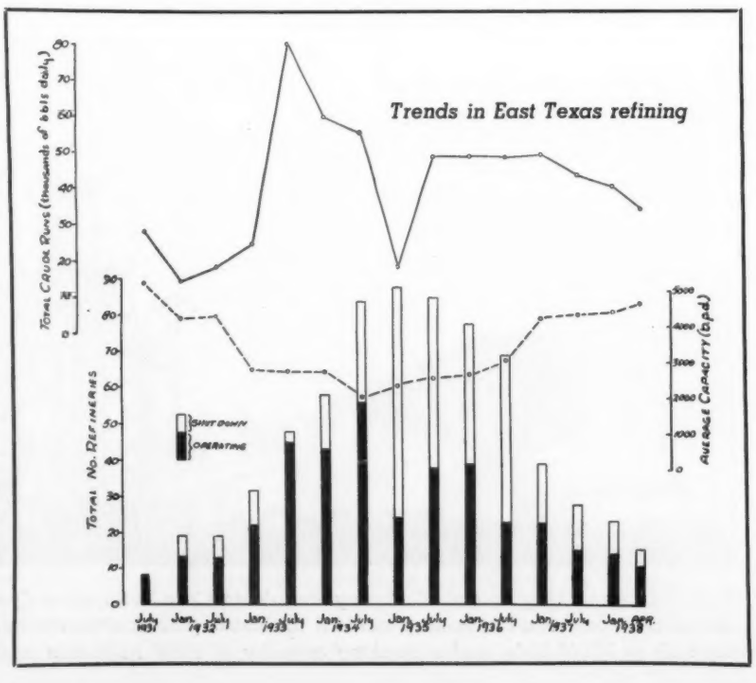
Throughout its history refining in the field has been based on the production of gasoline as its premium product. To that end, cracking and reforming processes have been widely adopted to give a maximum output of high octane motor fuel. The manufacture of heating oils, naphthas and lubricating stocks has been given remote second thought by most operators, if considered at all. This lack of diversity, although commonly found in smaller independent refineries, may be considered as partly responsible for the present weak position of East Texas refining.

Quality Gasoline Output

So far as gasoline manufacture is considered, most East Texas refiners can compete successfully with the larger refineries of the Gulf Coast in quality of product and yield obtained. Some plants, through use of two-stage cracking and adequate fractionation, can obtain a gasoline yield of 65 per cent, averaging about 50 per cent straightrun and 50 per cent cracked stock. The cracking plant output of two plants where two-stage cracking is practiced falls in the 70-72 octane regular grade.

Through flexibility of operations, possible in the more modern plants of the district, refiners are able to obtain greater latitude in the relative production of gasoline and heating oils, a point that is becoming increasingly more important. Generally, however, it may be said East Texas refining is not as adaptable to the current variations in seasonal demand as in many other refining centers.

The manufacture of naphthas, for which East Texas crude is particularly well adapted, has received some attention among the more progressive refiners, but its adoption is not as widespread as it might be. Premier Oil Refining Co. of Texas, whose plant is at Willow Springs, near Longview, is equipped to manufacture 11 specialized products. Two grades of gasoline, including 65 plus and 57-60 octane products are made of the straightrun and cracked fraction. In addition the plant is designed to produce three closely cut naphthas, rubber solvent, V.M.&P. naphtha and Stoddard solvent. Kerosene, three distillate cuts and light and heavy tractor fuel round out the diversified production of this plant.



Production schedules at the Longview plant of Danciger Oil & Refineries, Inc., will shortly be improved through addition of a vacuum tower to flash bottoms. This plant combines cracking and reforming to produce high-octane gasoline, and facilitate changes in operations to meet market demand. At Tyler, McMurrey Petroleum Corp. added a 2,750-bbl. Dubbs cracking unit during 1937 to its 10,000-bbl. refinery. Previous to that, Solvex Refineries, Inc., at Gladewater, installed a 2,000-bbl. Dubbs unit.

Some indication of the proportion of products shipped from East Texas plants may be found in

the report of the Federal Tender Board, for approved movements of refinery products since July, 1936. Table 2 shows that of the total tendered movement of 21,138,166 bbls. of products by 13 refining companies, 60 per cent was for gasoline and naphtha. The kerosene-distillate-gas oil fractions comprised a little over 10 per cent and fuel oil represents 22 per cent of movements, the remainder consisting of unfinished oils.

Excepting for the remains of numerous junk plants of former days, a refinery survey today shows little of the effects of boom times. The accompanying chart shows the trends in East Texas refining as regards three phases. The character of operations in the early history of the field did not contribute to a very complete record, and information covering that period is essentially erratic.

The peaks and depths of the crude run curve as plotted semiannually merely indicate the wide divergence in operations from month to month. The rocketing gains shown beginning early in 1933 brought about a considerable influx of new operators, erecting hastily constructed plants, and engaging for a time in the skimming boom, then lapsing into inactivity and none too early obsolescence. The carry-over of listings for many shut down plants is doubtless too high, but continuous reorganization and transfer of ownership made accurate check on number of plants and percentage operating practically impossible.

Data regarding crude runs and plants operating since 1935 closely reflect the recent trend. The effect of the boom period is seen in the average capacity of the East Texas refinery. Although crude runs have gradually declined during the past year, the junking of small plants, and additions to existing plants have brought the average capacity steadily upward. An important point indicated by the information is that, both from the standpoint of number of plants and volume of crude runs, the general conception of the skimming era was largely magnified. On the other hand, it is quite probable that a number of "refiners" did not assume the formality of a company name or even, in some cases, permanent plant sites. Although definite and accurate records of operations during the height of the boom are impossible to tabulate today, the principal point is that such conditions are definitely passed, and East Texas refining is now on a basis comparable with that in other sections of the oil country.

Since only one refinery in East Texas is currently operated by a major oil company, the local industry is essentially that of the smaller independent. As such, the present problems are manifold. Diminished profit margins, advanced transportation rates and forcible curtailment of the former outlets to major oil companies, have dealt three successive blows to the economics of the industry in the world's largest field. The result is that in the past few months most of the better plants have been shut down for varying periods. Although at present the outlook is somewhat brighter, operators are still faced with a problem of amortizing large investments in modern equipment under adverse conditions.

From an independent marketer's standpoint, East Texas enjoys no geographical advantage over other refining centers. Movement of products is dependent mainly on railroads, with the remainder divided among tank trucks and pipe lines operated by major oil companies. The result of the Madison decision in prohibiting purchases of East Texas refined products in volumes which formerly benefitted both buyer and seller has placed the local refiner in a position where operation is contingent upon securing markets for his products which will allow a reasonable profit. Even operation at a loss is in some cases necessary in order for a refiner to maintain his crude sources.

TABLE 1—REFINERIES IN THE EAST TEXAS FIELD

Company—	Location	Crude capacity	Cracking capacity	Average daily crude runs
Beacon Refining Co.	Henderson	4,500	....	S.D.
Cascade Refining Co.	Kilgore	2,000	1,100	2,100
Clay Refining Co.	Arp	3,500	1,000	3,650
Danciger Oil & Refining, Inc.	Longview	6,000	4,000	6,350
East Texas Refining Co.	Longview	10,000	5,000	5,150
Hurricane Petroleum Corp.	Overton	5,000	3,000	3,780
Hurricane Petroleum Corp.	Arp	3,300	2,500	3,250
Lacy Refining Co.	Kilgore	3,000	1,700	2,790
McMurrey Petroleum Corp.	Tyler	10,000	6,000	S.D.
Martin Refining Co.	Gladewater	3,000	....	1,000
Premier Oil & Refining Co.	Longview	4,000	3,000	S.D.
Sinclair Refining Co.	Gladewater	4,000	....	3,150
Solvex Refining Co.	Gladewater	5,000	2,000	S.D.
Southport Refining Co.	Kilgore	4,000	4,000	2,100
Tower Refining Co.	Kilgore	3,500	1,000	S.D.
Utah Refining Co.	Kilgore	2,000	....	1,875
Total		72,800	34,300	35,195

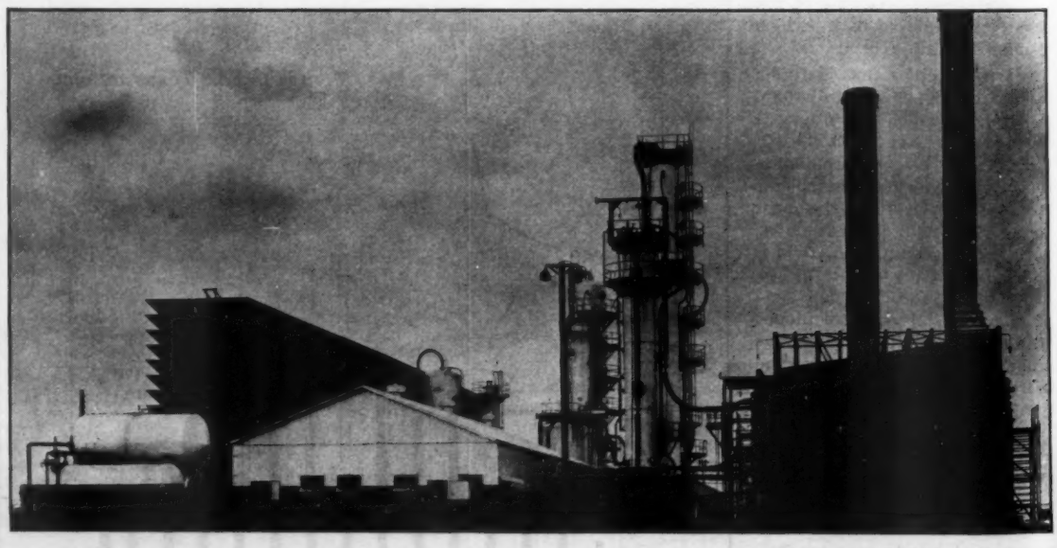
TABLE 2—FEDERAL TENDER BOARD NO. 1 KILGORE, TEX. APPROVED PRODUCTS TENDERS ISSUED TO REFINERIES OPERATING IN EAST TEXAS FIELD JULY 1, 1936 TO DECEMBER 31, 1937

Month tendered—	Gasoline-naphtha (barrels)	Kerosene-distillate gas oil (barrels)	Fuel oil (barrels)	Unfinished oils (barrels)
July, 1936	734,296	145,299	302,493	65,000
August, 1936	749,356	163,018	305,392	55,000
September, 1936	656,886	149,559	316,752	60,000
October, 1936	705,406	158,507	314,100	79,900
November, 1936	649,584	164,654	260,734	55,000
December, 1936	765,344	207,204	268,499	55,000
January, 1937	843,600	171,744	271,932	78,000
February, 1937	643,264	104,143	198,048	110,188
March, 1937	543,266	79,160	182,940	70,000
April, 1937	652,647	91,350	211,320	94,000
May, 1937	649,343	76,300	224,818	147,948
June, 1937	607,807	90,372	222,765	95,000
July, 1937	667,962	89,672	300,527	105,000
August, 1937	754,892	90,625	290,843	82,000
September, 1937	801,254	117,350	279,137	180,000
October, 1937	743,454	98,030	266,474	121,571
November, 1937	761,463	102,950	224,847	126,500
December, 1937	731,136	90,141	221,400	44,000
Total for period	12,660,960	2,190,078	4,663,021	1,624,107

Run Outside Crude

Out of this condition has come a paradox similar to that regarding coal carried to Newcastle, for crude from outside fields is being moved into East Texas in increasing volumes for processing in the field plants. To its plants at Overton and Arp, Hurricane Petroleum Corp. moves crude from the Lisbon and Cotton Valley fields of North Louisiana. This outside crude furnishes roughly two-thirds of the charge to stills in the Hurricane plants. The Danciger refinery at Longview processes some South Texas crude with its local production. Premier Oil Refining Co. of Texas is now reported to have contracted for considerable crude from the Schuler field of South Arkansas, to be run in its Longview refinery which has been shut down for several months. Talco crude has been run to stills in East Texas in instances in the past, but its character does not permit successful processing in plants designed to handle the superior East Texas grade. In view of the current price of $1.35 for East Texas crude, those refiners who do not maintain their own production in the field sufficient to provide a bulk of their charge to stills, must look to other fields for cheaper crude. The increase of crude to East Texas plants is likely to continue for some time.

Greater diversification may also aid in solving the problems of refinery operators in the area. This would be possible with other cheaper crudes. A cooperative pipe line to the Gulf Coast is talked of, as a measure in combating increasing rail rates, but its possibility is remote.



New Dubbs cracking unit at McMurrey Petroleum Corp. refinery at Tyler, placed on stream last year, makes this plant one of the most modern in Texas. The McMurrey refinery has a total daily crude capacity of 10,000 bbls. and a cracking capacity of 6,000 bbls. and is the largest plant in East Texas

Modification of Antitrust Statutes Is Suggested

WASHINGTON, D. C., May 9.—That business revival can best be brought about by removing governmental restrictions on the play of free enterprise was the consensus of business men expressed at the annual meeting of the Chamber of Commerce of the United States here last week.

Of particular interest to the oil industry is the following section of the resolution on antitrust laws:

"There should be such modification of the antitrust laws as would make clear the legality of agreements increasing the possibilities of keeping production in proper relation to consumption with protection of the public interest at all times through government supervision of such agreements. There should also be provision, when business considerations make clear the desirability of mergers and consolidations, for determination in advance of legality or illegality.

"The circumstances of the natural resources industries warrant special treatment for them. A tribunal of officials of the federal government familiar with these industries should be authorized to permit agreements in curtailment of production during continuance of a condition of overproduction found by the tribunal to be injurious to the public interest. Through decision of the Supreme Court in 1933, there is now opportunity for enterprises in natural resources, and in other industries, to join in marketing agencies through which they can take proper measures for self-help and common protection in solution of some of their problems."

Tax on Leases

The distinction between an operating oil and gas lease and the type of lease which may be described as a mineral deed has been recognized by the Bureau of Internal Revenue for tax purposes. The bureau has now ruled that a lease which merely grants a license for mining and operating for oil and gas is not subject to the stamp tax as the conveyance of realty, although an instrument covering lands which convey to the grantee an undivided interest in and to all of the oil and gas results in a conveyance of realty subject to the federal stamp tax. While the decision refers only to Kansas, it is understood it is applicable in states with similar leasing laws. The type of lease not subject to the stamp tax was described as one under which the lessee has exclusive right to produce oil and gas but the actual title does not pass from the landowner to the lessee until it is brought to the surface and separated from the land, and the lessee has no permanent interest in the land if oil or gas is not found. The taxable type of instrument conveys to the grantee the oil and gas in or under the land without regard to when or by whom it may be produced and brought to the surface. The grantee in such an instrument becomes the owner of all of the oil and gas in the land.

Wage-Hour Bill

Enactment at this session of congress of a wage and hour regulation bill now seems quite probable, although it will be in a form which will affect the petroleum business very slightly, if at all. A revised bill in greatly simplified form was reported by the house committee on labor and after the house rules committee refused to grant a special rule for calling up the bill a majority of the members of the house signed a petition which will force the bill to be brought up for consideration on May 23 unless the rules committee meanwhile relents and sets an earlier date. Passage by the house is thus virtually assured, after which the bill will go to the senate which last session passed a much different measure creating a labor standards board to fix wages and hours, industry by industry. It is possible a conference report may be delayed in the senate because of the opposition of many senators from southern states, since the house bill, unlike the senate bill, sets up a flat nation-wide scale of wages and makes no provision for differential for industries in the South.

The new house bill sets up no new government bureau, but provides for determinations by the secretary of labor and enforcement by the department of justice through the federal courts. The chief functions of the secretary of labor would be to determine whether an industry is engaged in interstate commerce and hence subject to the law. Minimum wages are fixed at 25 cents per hour for the first year, to be increased each year thereafter by 5 cents an hour to a maximum of 40 cents. Maximum hours during the first year are not to exceed 44, to be reduced two hours per week the next year and two the following year until a maximum of 40 hours is reached. There would be no authority to fix minimum wages above 40 cents per hour nor maximum hours less than 40 per week. The maximum hours could be exceeded upon payment of time and one-half for overtime. Child labor is also prohibited, and special exemptions are made for wages of learners and handicapped workers. The law would not apply to any employe employed in a bona fide executive, administrative, professional, or local retailing capacity, or in the capacity of outside salesman, these terms to be defined by regulations of the secretary of labor. Filling stations, therefore, presumably would be exempt.

Important provisions are those relating to the determination of an industry in interstate commerce and provisions for court review. The secretary of labor is to issue an order bringing an industry under the law after making a finding that the industry is engaged in commerce, and among the tests to be used are whether the industry is nation-wide in its scope, whether it is dependent for its existence on substantial purchases for sales of goods in commerce and transportation in commerce, and whether its relation to interstate commerce otherwise is close and substantial. Under these tests it is thought petroleum production would be declared under the law, as well as all other branches of the oil industry with the possible exception of retail station employes. Enforcement would be by injunction rather than by jury trial.

Leasing Regulations

The office of Indian affairs of the department of the interior is revising its regulations governing oil and gas leases on Indian lands, the first general revision since 1925. The principal change increases the maximum acreage which may be covered by any one lease from 4,800 acres to 10,240 acres. Another change permits a lessee to file government bonds in lieu of a corporate surety bond if he so desires.

Natural Gasoline

California Natural Gasoline Production Higher in March

LOS ANGELES, Calif.—Production of natural gasoline in California during March increased 1,000 bbls. daily, to 45,000 bbls. daily, according to the monthly report prepared by the California Bureau of Mines division. Refinery utilization increased 6,000 bbls. to 36,000 bbls. daily and total stocks increased from 2,390,000 bbls. on March 1 to 2,549,000 bbls. on March 31. A summary on the March plant operations is as follows:

Field—	Gas treated (thou. cu. ft.)	Natural gasoline produced (gallons)
San Joaquin Valley:		
Beiridge	4,266,419	2,576,039
Elk Hills	54,588	119,376
Kettleman Hills	11,154,269	16,019,254
Midway-Sunset	1,147,908	2,207,769
Mountain View	486,986	576,314
Miscellaneous	983,979	582,581
Coastal District:		
Elwood	632,876	923,079
Rincon	158,815	220,198
Santa Maria	154,605	413,337
Ventura Avenue	3,398,113	4,479,835
Miscellaneous	516,091	447,746
Los Angeles Basin:		
Brea-Olinda Coyote	536,527	1,383,537
Dominguez	2,094,728	3,213,248
El Segundo	644,995	1,033,576
Huntington Beach	1,312,752	3,646,882
Inglewood	312,200	448,928
Long Beach	2,027,605	7,544,235
Montebello	349,346	499,625
Richfield	223,865	546,747
Rosecrans	449,492	821,689
Santa Fe Springs	2,182,240	5,525,940
Seal Beach	505,954	753,475
Torrance	109,607	257,992
Miscellaneous	1,097,704	2,509,077
Total all fields	34,801,664	56,750,479

Distribution

	Gallons	Gallons
Stocks beginning of month	2,185,576	
Production during month	56,750,479	
Delivered to refineries		55,584,030
Delivered to jobbers, brokers, and blenders		1,125,000
Blended at plants for production of motor fuel		8,040
Losses		44,811
Stocks end of month		2,174,174
Total	58,936,055	58,936,055
		Bbls.
Liquefied petroleum gas production	1,956,812	46,591
Motor fuel produced	9,716	231

Texas Natural Gas Production Slightly Lower in March

Total production of all types of gas in Texas during March was slightly under the February production according to the monthly report of the Railroad Commission of Texas. Dry gas withdrawals for the state amounted to 1,950,177,000 feet daily during March as compared with 2,015,535,000 feet in February and 1,791,346,000 feet daily in March, 1937. The dry gas was 63.90 per cent sweet and 36.1 per cent sour. Methods of disposal were as follows: To pipe lines for fuel and light purposes, 26.29 per cent; to lease operations and drilling, 5.32 per cent; repressuring and gas-lift, 2.54 per cent; to gasoline plants, 65.85 per cent. Casinghead gas production amounted to 1,070,040,000 feet daily of which 94.18 per cent was utilized in natural gasoline plants.

During the month 144 natural gasoline plants were in operation, processing a total of 3,020,217,000 feet of gas daily. In February 3,038,559,000 feet of gas was processed daily and in March, 1937, 2,677,309,000 feet daily. Despite the smaller volume of gas handled daily during March, daily average production of natural gasoline increased from 2,247,129 gallons in February to 2,331,763 gallons in March. In addition, some 257,350 gallons of butane-propane were recovered daily. A total of 37 carbon black plants were in operation, producing 1,145,877 pounds of carbon black daily. An average recovery of 1.414 pounds per 1,000 feet of gas burned was reported.

Refinery Expansion

Shell to Close Arkansas City Refinery Due to Low Prices

Shell Petroleum Corp. announced this week that in furtherance of its policy of gradual withdrawal from marketing activities in the states of Kansas, Oklahoma, Nebraska and the Dakotas, it has decided to close down in the near future its refinery at Arkansas City, Kans., from which that area receives its supplies. The statement, issued by R. B. Roark, vice president, went on:

"This decision has been taken in the light of economic conditions affecting the petroleum industry in the Mid-Continent which has resulted in an increasing disparity between the price of crude oil and the prices which the refinery receives for the refined products. Shell does not consider the price of crude oil excessive when due consideration is given to the effect of unavoidably low proration allowables under which the industry now operates plus the high cost and risks of exploration and the increased cost of exploitation of deep-seated oil reserves.

"The trouble is that the prices of gasoline and other refined products are too low. The current price of 4⅝ cents per gallon for gasoline in Oklahoma is 20 per cent below the price prevailing in the corresponding period of last year. Today's price of $1.22 per barrel for 36-gravity crude is unchanged from a year ago. As a result the operation of the Arkansas City refinery has been continued on an unprofitable basis for some time in the hope that the situation might change for the better, but there does not appear to be any sign of early improvement to justify continued operation. It is deeply regretted that this action is necessary, particularly because of the employes who will be affected by the shutdown."

Onyx to Erect Small Plant In Cochran County, Texas

FORT WORTH, Tex.—Onyx Refining Corp., of Abilene, Tex., has announced intentions to construct a small refinery at Whiteface, Tex., in eastern Cochran County and adjoining the Hockley County line. Crude oil will be obtained from the Slaughter and Duggan fields nearby. Neither of these pools has a pipe outlet at this time. Construction work is scheduled to begin within 30 days.

Premier Reopens Refinery In East Texas Field

SHREVEPORT, La.—Premier Oil Refining Co. has reopened its 4,000-bbl. plant at Longview, Tex., after a several months' shutdown. Daily crude runs of about 2,700 bbls. will be maintained during this month. The company is reported to have contracted for 70,000 bbls. of crude from the Schuler field of Arkansas.

March California Gasoline Tax Collections Show Decline

SACRAMENTO, Calif.—A sharp reduction in gasoline sales during the month of March was announced in a report by the state board of equalization, showing a tax assessment levied against the distribution of 135,243,235 gallons. The tax for the month amounted to $4,057,297, a loss of 6.51 per cent compared to the same month of 1937.

Despite the reduction in comparison with last year, the March income from the gasoline tax was substantially higher than the income of $3,564,705.33 reported for February, 1938. During the three months of the current calendar year a gain has been shown only in February sales, the report said.

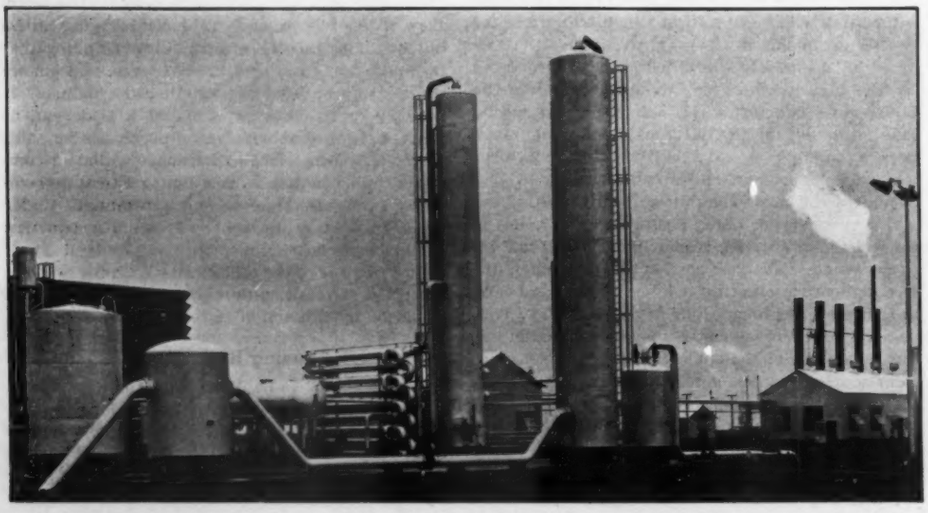
Parco, Wyo., Refinery to Close In June for Annual Inspection

DENVER, Colo.—Closing of the Parco, Wyo., refinery of Sinclair Refining Co. for its annual inspection and clean-up period was announced this week by plant officials. Starting of the shutdown has not been definitely fixed but is expected to be some time in June. The plant will be closed for 14 to 18 days during which period most of the plant employes will take their annual vacation.

Test Runs Started in New Louisiana Refinery

SHREVEPORT, La.—Co-Service Oils, Inc. is testing its new refinery at Princeton, La., and plans to have

NEW GASOLINE PLANT FOR HEYSER FIELD OF TEXAS



Humble Oil & Refining Co.'s new gasoline plant in the Heyser field of Calhoun and Victoria counties, lower Texas Gulf Coast. The plant has a daily gas capacity of 30,000,000 feet and is the third plant recently completed by Humble in that area. Its daily gasoline output at present is about 25,000 gallons.

the plant in regular operation by the latter part of this month. The plant is of 750 bbls. daily capacity and will specialize in the manufacture of lubricants, utilizing vacuum and atmospheric distillation. The company, formed late in 1937, is headed by Douglas MacDonald with offices in Shreveport.

Mohawk Adding Ethyl Plant At Fruitdale Refinery

LOS ANGELES, Calif.—Plans for the erection of a 5,000-bbl. ethyl plant in the Fruitdale, Calif., refinery of Mohawk Petroleum Corp. were announced last week by E. L. Rogers, plant superintendent. Completion is expected by the latter part of May at a cost of $30,000. A centralized steam plant, consisting of two 1,000-hp. boilers, is also under construction.

Hearings on Gas Rates in Plains Country Towns

AUSTIN, Tex.—C. V. Terrell, chairman of the railroad commission, announced the commission will conduct hearings for evidence on which to fix gas rates for the cities of Wellington, Memphis and Quanah on May 31, June 7 and 14, respectively.

He said the United Gas Corp. had appealed to the commission from rate reducing ordinances of city councils.

Natural Gas News

Tulsa Will Have Gas Convention In 1939; Dates Not Decided

NEW ORLEANS, La., May 10.—Tulsa was chosen as the convention city for the 1939 meeting of the Natural Gas Division of the American Gas Association, which is meeting here this week. The dates for next year's convention had not yet been decided.

Panhandle Sour Gas Order Follows Court Decision

AUSTIN, Tex.—Acreage, rock pressure, and potential are the three factors included in the railroad commission's new order covering the sour gas wells in the West Panhandle field. This is its second attempt to enforce ratable takings from the 450 sour gas wells in the field, the first proration order having been invalidated in February, 1937, by the Supreme Court of the United States.

In the former order, the high court construed the lack of a rock pressure factor in the allocation formula as inequitable. To correct this the new formula assigns two-thirds of the per-well allowable to the product of acreage times rock pressure, and one-third to potential. A maximum of 640 acres may be assigned to one well for the purposes of proration. The prior order assigned one-half of the allowable gas withdrawal on potential and the other one-half on acreage.

A sour gas allowable for May of 581,837,000 feet daily was set. This is a slight increase over previous months to care for greater demand at gasoline plants and carbon black units. In the absence of a proration order, the statutory limit of 25 per cent of the potential has been the only limitation upon gas production. Twenty of the present 450 sour gas wells in the field do not have a pipe line connection, but the commission engineers point out that the withdrawals from the 430 connected wells are very unevenly distributed as only a few supply the demand, and as a result are causing an uneven depletion of pressure in this huge reservoir.

Gas Utility Revenues Show Decline in February

Revenues of manufactured and natural gas utilities totaled $77,805,300 in February, a decrease of 2 per cent from $79,382,600 reported for February, 1937. Revenues of the manufactured gas industry aggregated $31,485,300, an increase of 3.6 per cent. The natural gas utilities reported revenues of $46,320,000, a decrease of 5.5 per cent.

Sales of manufactured gas reported for February amounted to 32,084,900,000 feet, an increase of 3.9 per cent, while natural gas sales for the month were 122,301,700,000 feet, a decrease of 8.7 per cent.

Natural gas sales for industrial purposes amounted to 50,031,600,000 feet, a decrease of 16.6 per cent. Sales of natural gas for generating electric power aggregated 11,366,100,000 feet, an increase of 5.6 per cent.

Visit Repressuring Operations During A.P.I. Field Trip

Oil production men visited two important repressuring projects in Osage County, Oklahoma, on May 5 as part of a field trip conducted by the Northeast Oklahoma chapter of the American Petroleum Institute. The first stop was at the North Avant community project where J. E. Crouch of the Shell Petroleum Corp. explained its principal features. The property is managed by his company for the combined interests of associates, including Phillips Petroleum Co., Sinclair Prairie Oil Co., Wolverine Oil Co., a Shell subsidiary, and the Cities Service Oil Co. This block, consisting of 4,400 acres, was unitized two years ago but actual repressuring did not start until last year and to date has been applied to only a part of the property. It was pointed out that this has been a gas drive rather than a repressuring operation because reservoir pressure has not been raised in the procedure which has been followed.

After lunch at Pawhuska, the party went to the South Burbank field where the Carter Oil Co. operates properties in the interests of 12 companies. Ivan S. Salnikov, division superintendent of the Carter Oil Co., conducted the tour of the field and discussed the project after a dinner given for the party by the Chamber of Commerce of Fairfax. The South Burbank project, consisting of 4,000 acres of which 2,720 acres have been developed, has been subjected to repressuring since 1934.

Arrangements for the tour were made by George M. Vandever, petroleum engineer, E. H. Moore, Inc., vice chairman in charge of programs. The party was directed by Paul S. Hedrick, oil editor of the Tulsa World, acting secretary of the chapter. Others who made the trip were: Ralph W. Hill, L. L. Foley, Buell O'Connor, F. E. Elkins, E. A. Renfro, R. N. Hastings, L. E. Johns, Tom Brownfield, Dee Blackburn, Lynn Hicks, Karl Digel, Chris B. Martin, Earl E. Ives, C. O. Moss, J. F. McGuigan, W. T. Wright, Jr., L. B. McClune, J. E. Couch, Jack H. Abernathy, H. J. McNally, M. A. Wright, W. F. Eltord, Jr., Norris Frantz, J. F. Scott, W. H. Lang, David Greene, Mrs. Eva H. Greene, Hayes McCoy, Ivan S. Salnikov, D. C. Bohnsack, O. R. Reed, Henry Rosenberg, E. L. Carney and Paul Reed.

Pipe Line Activity

Test of Right of Texas to Tax Interstate Pipe Lines

AUSTIN, Tex.—Whether Texas can consider any part of interstate business of a pipe line in computing the company's franchise tax is before Judge J. D. Moore.

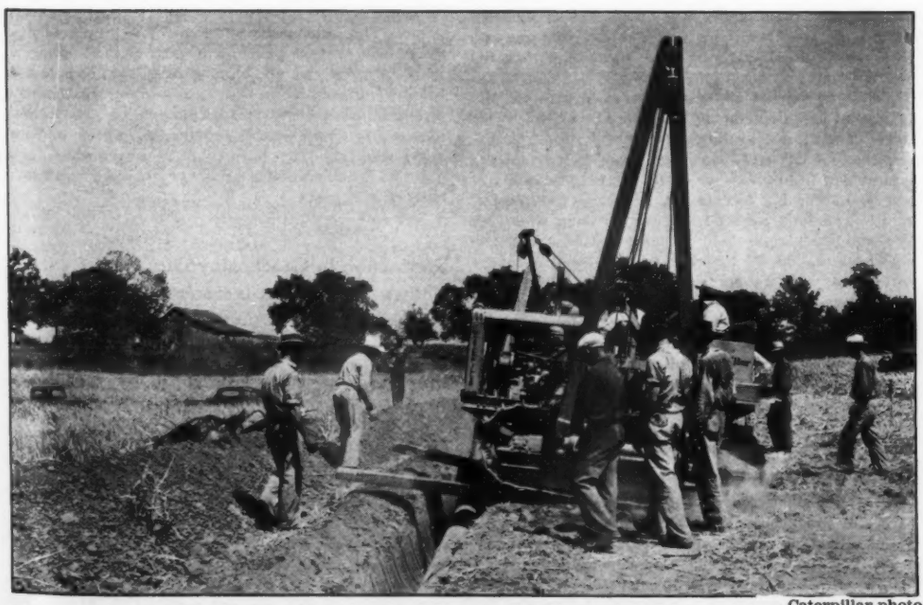
Formerly taxes were based on gross receipts on intrastate business and capital. Since 1931 the state has claimed tax on a portion of interstate business on the contention it was partly due to Texas investment and operation. Atlantic Pipe Line Co. has paid the additional tax under protest and seeks return of approximately $9,000 and an injunction against the present method of computation of tax.

The case is a test to determine the computation for all pipe lines operating interstate from Texas.

American-Michigan Company Plans Gas Gathering System

SAGINAW, Mich., May 9.—The American-Michigan Pipe Line Co. of Muskegon has asked the State Public Utilities Commission for authority to construct a natural gas transmission line and gathering system in Isabella and Clare counties, through which it expects to sell a minimum of 2,000,000,000 feet of gas to the Gas Corporation of Michigan, which serves Mount Pleasant, Clare and Rosebush.

The line is proposed to collect gas from wells of the American Production Co. in Sheridan and Grant townships of Clare County and Wise and Vernon townships of Isabella County. The estimated cost is placed at $35,100.



Caterpillar photo

Diesel tractors equipped with sidebooms bending a 400-foot section of 10-inch pipe for a river crossing in Kansas

INTERNATIONAL NEWS

Production in Iran Is 32 Per Cent Over 1937

Anglo-Iran Oil Co., Ltd., production in Iran jumped 32 per cent in February, comparing to the same month in 1937, to a total of 835,000 tons, approximately 6,270,850 bbls. Production in February, 1937, totaled 631,000 tons, or about 4,731,810 bbls. Yield for the first two months of this year is reported at 1,604,000 tons, an increase of 16 per cent over the aggregate of 1,381,000 tons reported for the same period in 1937.

Mexican Petroleum Situation Still Awaiting Developments

Mexico's petroleum troubles appear to be increasing. Senor Eduardo R. Suarez, secretary of finance, was reported to have resigned, although semiofficially denied. The resignation was widely discussed because of reports of failure of his fiscal policies, including the heavy drop in the Bank of Mexico's gold reserve, and reports that Washington refused to deal with him in negotiations for payment of seized oil property when he was in the United States three weeks ago.

At the annual monthly roundtable conference of export credit men held in New York under the auspices of the foreign credit interchange bureau of the National Association of Credit Men it was said that oil acquired by the Mexican government is being routed through New York to Germany and other European importers. The disclosure was attributed to bankers requested to arrange for transmitting funds in payment for the oil. It was asserted that recent shipments were destined for Germany by way of ports in Ireland and Holland.

Nevertheless it is difficult to say positively that expropriated oil is figuring in trade between Mexico and European countries. The Mexican government has certain oil stocks produced from properties owned and operated by the national company and even prior to expropriation it had interests in the Poza Rica field which aggregated more than sufficient to supply the trade thus far reported since March 18.

Producing operations in most expropriated fields are restricted to about 10 per cent of normal capacity and terminal storage tanks are said to be filled. Most of the oil produced is going into field storage which is already rapidly filling and to operation of the topping plant at the Mexican Eagle refinery which is producing sufficient products to supply the internal demand. Owing to Mexico's strained financial condition it is regarded a matter of time until the petroleum workers will be discharged in wholesale quantities, but this view is not shared by Vincente Lombardo Toledano, president of the Mexican Confederation of Labor, who was a visitor in New York en route to Norway, to attend the meeting of the International Federation of Trade Unions.

Petroleum exports from Mexico during March totaled 1,039,936 bbls., according to a report to the Department of Commerce from Mexico City, the first official figures received here since the Mexican government expropriated properties of foreign oil companies. Mexican exports during February were 2,012,178 bbls., and in January were 1,650,579 bbls. Total exports of crude oil and petroleum products from Mexico during 1937 amounted to 23,065,000 bbls. valued at approximately $247,637,826.

The Lamp, published by the Standard Oil Co. (New Jersey), says in its current issue:

"The rank and file of oil workers for the foreign companies, most of whom had been blinded by the false promises of unscrupulous leaders, were the immediate sufferers in the unfortunate plight into which the ill-considered action of a radical group plunged the country. Men were laid off. Double pay, usual for work under certain conditions, was discontinued. Economic and social benefits formerly enjoyed were sharply curtailed. The workers were learning that if private management cannot raise wages indefinitely against a ceiling of fixed prices, mounting taxes and handcuffed development, a syndicate-government combination can do no better.

"Thus there has been paralyzed an industry that paid the highest wages in Mexico, gave its workers an improved standard of living, and that in taxes, royalties, employment, social benefits and the stimulation of foreign trade and local business, created a new fountain of national wealth and current income.

"Standard Oil Company (New Jersey), in common with other companies that were victims of the seizure, will naturally exhaust every legal recourse to preserve the rights of its stockholders."

Shipments From Iraq Field 5 Per Cent Higher Last Year

Petroleum shipments to the Mediterranean seaboard by Iraq Petroleum Co., Ltd., totaled 30,558,820 bbls. last year, according to official records recently obtained from the American consulate office at Baghdad, Iraq. The shipments last year were approximately 5 per cent higher than the total of 28,935,730 bbls. reported for 1936.

Shipments by pipe line to the Mediterranean terminals of the Iraq line compose a large bulk of production in that country, but the internal consumption supplied from the Khanaqin field is not included.

The shipments by months last year and for 1936 are shown in the following table:

Month—	Metric tons 1936	1937
January	332,476.45	353,814.00
February	301,030.21	320,017.32
March	359,335.00	362,009.14
April	292,579.94	357,395.94
May	352,448.00	369,498.98
June	353,380.53	319,003.23
July	348,667.00	341,612.00
August	354,204.18	321,213.48
September	268,826.00	333,821.29
October	299,652.64	358,052.71
November	316,422.60	349,936.38
December	315,422.76	326,521.99
Total	3,894,445.51	4,112,896.46

In the report reviewing the past year's activities petroleum is credited with contributing considerably toward the stabilization of the country's finances and with permitting the government authorities to carry on important irrigation and public works projects. On the western side of the Tigris River, British Oil Development activities during 1937 were prosecuted with more vigor than heretofore.

"That oil exists in enormous quantities within the area under the concession of B. O. D. is beyond dispute and according to expert opinion it is only a matter of time—and probably not a very long time—before another big oil field is developed in Iraq," the report states. The oil found so far has been unusually heavy and with an abnormally high sulfur content, ranging upward of 6 per cent. Search for deeper producing horizons which may yield a more desirable grade of crude oil is going forward.

Rumors persist that the Iraq government will construct a refinery to supply internal requirements.

Brazil-Bolivia Oil Deal May Have Mexican Background

Behind the decree issued by President Getulio Vargas of Brazil placing complete power over administration and financing of oil operations in the newly created National Petroleum Council, to which only Brazilians will be named, lie previous moves by other South American countries. Expulsion of Standard Oil Co. of Bolivia and seizure of its properties in Bolivia opened the way for an alliance between Bolivia and Brazil, culminating in agreements with Brazil for financing and construction of a railroad and provisions for a pipe line right-of-way and financial backing for exploitation of Bolivia's petroleum reserves. The Argentine government has been brought into the alliance between Bolivia and Brazil because any pipe line link with ocean terminal facilities would have to pass through and terminate in Argentina. The easement through Bolivia has been granted only so long as Standard of Bolivia, its parent company, Standard of New Jersey, or other subsidiaries have no part in operations.

There is also the possibility that Brazil's decree may be remotely linked with expropriation of properties in Mexico. Representatives of the Mexican government were dispatched to Brazil immediately after the expropriation decree became effective, presumably for the purpose of attempting to capture part of the Brazilian market. Since Brazil has no developed oil resources within its boundaries, it is possible the Brazilian action was taken only after being assured of an adequate supply from Mexico. Brazil has a few boats of its own which could be used in transporting oil from Mexican ports.

There is no clear-cut conception available so far as to just how American company operations in Brazil will be affected. Construction work was suspended on a partially complete refinery being built by Standard Oil Co. of New Jersey at Sao Paulo. There is some question whether the refinery will be permitted to operate under the decree. In giving the new National Petroleum Council full power to fix the price and selling policy and otherwise regulate commerce in petroleum and its by-products, the Brazilian decree shrouded the entire business with uncertainty.

In the event the rich marketing territory around Rio de Janeiro should be restricted and confined to a national company it probably would be difficult, if not impossible, to realize a profit on marketing operations within Brazil. This possibility is believed responsible for the Standard of New Jersey decision to suspend construction work on the Sao Paulo refinery rather than any danger of seizure by the government. There is also the question of restricting financial interest in Brazilian companies to nationals, which if literally applied would eliminate the Standard refinery from participation in the country's petroleum business.

Brazil also is reported proposing an arrangement for additional supplies from Venezuela.

Consideration has been given to using Brazilian navy tankers for movement of Venezuelan crude to Rio de Janeiro and other ports of Brazil. The preliminary arrangements include plans for a study of the Venezuelan market with a view to shipping Brazilian goods to that country. In connection with exchange control, Brazilian officials have brought up that part of the American oil does not originate in this country, but rather in Venezuela, Colombia, or Peru, and therefore there is a question whether dollar exchange should prevail as a basis of purchases.

Production in Czechoslovakia Shows 19 Per Cent Increase

Although crude oil production in Czechoslovakia is unimportant in world commerce the rate of output the first quarter of 1938 is nearly 20 per cent greater than registered in 1937 which is indicative of the trend in other European countries.

March production totaled 1,776 metric tons, or about 12,055 bbls., compared to 1,526 tons in February, 1938, and 1,372 tons in March, 1937, representing increases of 16.4 per cent and 29.4 per cent, respectively. Cumulative production of crude oil for the first three months of 1938 aggregated 4,920 tons, representing a gain of 19 per cent above the output of 4,135 metric tons during the same period in 1937. Czechoslovakian production totaled 36,162 bbls. in the first quarter of this year compared to 30,392 bbls. for the same three months in 1937, using a conversion factor of 7.35 bbls. per ton.

ENGINEERING and OPERATING

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Opportunities and Natural Gasoline

By R. C. ALDEN
Phillips Petroleum Co.*

THE natural gasoline industry has a surpassing record for vigor, energy and courage. It is a remarkable achievement for an industry "sired by a roustabout and damned by 2-inch pipe" to have attained its present stature. Think of the advances that have been made: the oil absorption process, fractionation, Reid vapor pressure, the natural gasoline grading system, motor fuel blending, liquefied petroleum gases, blimps, tanker shipments, polymerization, and many others.

There is no doubt but that the natural gasoline industry will resume its vigorous record of achievement. Momentarily, however, we have sunk into the apathy of depression complexes. Practically all of our energy has been given over to the grim necessity of weathering the economic storms of hard times. That we have weathered the storms is proof enough that we are capable of industry, the final step in the sequence of events leading to constructive progress. But one is reminded of the maxim, "All work and no play makes Jack a dull boy." We are too prone nowadays to consider our job is well done when we have survived another month.

The essential ingredients of progress are imagination, initiative, and industry. First, there must be the idea; second, a start must be made; third, there is the continued hard work of application. It is the purpose of this paper to demonstrate that imagination has not been dead. There are plenty of ideas awaiting development. There are numerous problems to be solved if natural gasoline is to retain its usefulness and value. In the following paragraphs several of these ideas will be discussed; several of the problems will be reiterated. There is nothing particularly new about them except that perhaps they have been forgotten or overlooked.

In preparing this compilation considerable use has been made of the Proceedings of the annual conventions of the Natural Gasoline Association of America. If you should reread these interesting documents you will most likely be impressed with the unanimity of opinion as to the most serious economic flaw of the natural gasoline industry. That flaw is the lack of adequate storage facilities for the proper marketing of a product in seasonal demand. Hence, it seems appropriate to first review this subject.

Under almost any conceivable circumstance, natural gasoline has been, is and always will be confronted with a very serious seasonal storage problem. In the summer time when refinery stocks are being depleted and motor fuel prices are at their best the opposite conditions prevail for natural gasoline. In many instances summer natural gasoline can profitably be stored in refinery tanks for winter consumption. Considerable use has already been made of this idea, but the practice could become more widespread with mutual profit to both the refiner and natural gasoline manufacturer.

Possibly the most satisfactory solution to the seasonal storage problem is to install more storage facilities at natural gasoline plants. Butane-free natural gasoline can be stored through the hot summer months in inexpensive tanks. Near every natural gasoline plant there is no doubt an old crude oil storage tank which might be leased or purchased at a depreciated value. With cleaning and moderate repairs such tanks could be used to store many days' production of butane-free natural gasoline. Since most natural gasoline plants can extract excess butane in the winter time the stored low vapor-pressure natural gasoline could be brought up to such vapor pressure requirements as the winter market required.

The present storage facilities of the natural gasoline industry force unwanted material on the customer in larger quantities than he can use in the summer time and creates a scarcity in the winter time, when the customer could use more than is available. Neither sales policy is sound. A rational program of natural gasoline manufacture and storage would include the summer manufacture and storage of butane-free natural gasoline permitting the buyer to establish the market in respect to volume and vapor pressure. As we all know, in the present practice the sales pressure of filled storage tanks now dictates the summer markets for natural gasoline.

*Presented at annual meeting of the Natural Gasoline Association of America, Tulsa, May 11-13, 1938.

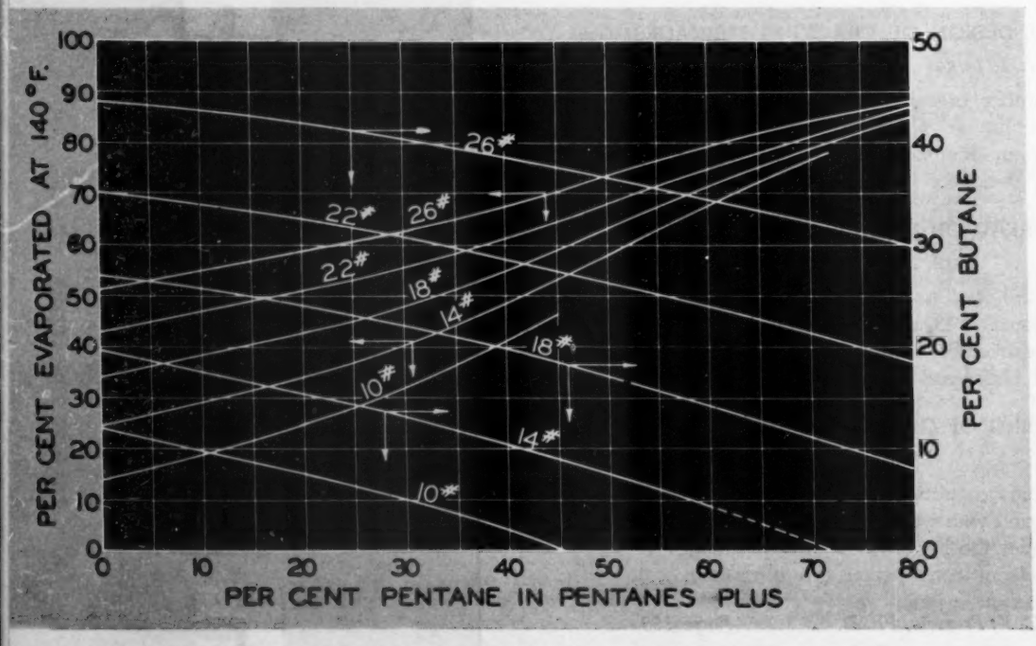


Fig. 1—Effect of pentane on the volatility characteristics of natural gasoline

Butane Content of Blending Natural Gasoline

The natural gasoline industry has never had quite enough courage to face the fact that there just isn't much market for butane in summer natural gasoline. The modern refinery, if it utilizes all the butanes-butenes formed in its cracking stills, can make a finished gasoline of 13-pound vapor pressure. Thus, into a market already crowded we are crowding still more butane.

If one assumes that butane-free natural gasoline merits a price corresponding to similar refinery products less the extra transportation, it can be calculated that butane in natural gasoline actually pulls down the market value of the butane-free natural gasoline, and this effect is very pronounced at summer price levels. This condition boils down to the fact that through the medium of price reductions the natural gasoline manufacturers are forcing their customer to buy something he does not need.

Relative Quality of Natural Gasoline

Perhaps the most urgent problem before the natural gasoline industry today is summarized by the following two facts:

1. During the past decade there have been very pronounced improvements in the volatility and octane number of refinery gasoline.

2. During the same interval there has been little improvement in the quality of natural gasoline.

This simply means that natural gasoline is worth relatively less as an ingredient of motor fuel than it was 10 years ago. The natural gasoline industry needs to give serious thought and action to this decreasing value of its product relative to refinery gasoline.

Recently we have made some interesting calculations pertaining to the trend in the volatility of refinery gasoline. According to these calculations five-sixths of the volatility of motor fuel in 1927 was obtained from natural gasoline, whereas in 1937 natural gasoline contributed only one-fourth of the volatile fractions incorporated in motor fuel. Coincident with this change in the origin of the major supplies of volatile fractions, there has been a pronounced increase in the octane number of average refinery gasoline.

As a matter of fact, with the inevitable reduction in vapor pressure of natural gasoline there has been a decline in the antiknock value of natural gasoline. Thus, while refinery gasoline has been forging ahead, natural gasoline has slowly given ground. Can anything be done to improve the quality and usefulness of natural gasoline? This is a serious question which should receive the

Problems of the Industry

courageous attention of natural gasoline manufacturers.

In a previous paper, the writer suggested that the natural gasoline industry should exploit volatility as the premium quality of motor fuel. It has always seemed that the oil industry missed a good thing when it did not emphasize volatility as thoroughly as antiknock properties have been exploited. At these annual meetings we have had scientific proof that volatility can and does contribute in a major way to motor performance. Currently the market for premium motor fuel is the doldrums. Maybe volatility is the best way to revive the market. Is it too late to do something about volatility as the premium quality of motor fuel?

Volatility as a Premium Motor Fuel Quality

One of the chief difficulties in the marketing of natural gasoline is its limited usefulness in blending in summer grades of motor fuel. Early every fall the buyer's interest must be revived.

The pronounced differences in volatility of natural gasolines of high and low pentane content were carefully studied by the association in the development of the natural gasoline grading system. To provide for either intentional or unintentional variations in the pentane content of natural gasoline the specification factor defined by percentage evaporated at 140° F. was adopted as a major requirement.

The low pentane naturals, i.e., those with very low per cents evaporated at 140° F., are especially adapted for blending in summer motor fuels while the high pentane naturals are ideal for blending in winter motor fuels. As a means of overcoming the limited summer usefulness of natural gasoline it is suggested that renewed consideration be given to the removal of pentanes intended for blending in summer grades of motor fuel. The pentanes removed could be added to unprocessed natural gasoline going to storage for winter consumption. Or the removed pentanes could be stored separately in the event the practice permitted the sale of the entire output of the plant.

The summer grades of natural gasoline thus produced would fall in the lowest volatility grades of our grading system while the winter grades would fall in the highest. Not only would such a practice improve the seasonal usefulness of natural gasoline from a quality viewpoint but it would also greatly improve the seasonal quantity picture. And incidentally there would be a tendency toward a constant use of butane the year round. Figure 1 shows what happened to the butane content, vapor pressure, and per cent evaporated at 140° F. of one natural gasoline as the pentane content was regulated.

Several important ways of improving the usefulness of natural gasoline which merit consideration are as follows:

(1) Bulk station blending of natural gasoline.

(2) Blending in crude oil for transportation to refineries.

(3) Transportation to refinery centers with poly feed.

Antiknock Characteristics of Natural Gasoline

The octane numbers of the chief constituents of natural gasoline are shown in the following tabulation:

Normal pentane	65
Iso-pentane	90
Normal butane	91
Iso-butane	99

Unfortunately the hexanes and heavier of natural gasoline do not have very high octane numbers as is demonstrated by the following representative examples:

Pentane free natural gasoline	A.S.T.M. octane numbers	Reid vapor pressure
1	60.2	4.45
2	66.2	3.30
3	57.0	3.60
4	63.9	3.15
5	56.4	4.05
6	61.0	4.50

The lowest octane products in the above tabulation unfortunately represent the largest production while the highest octane samples were obtained from small plants operating in small oil pools. Thus the attack on the problem of improving the antiknock qualities of natural gasoline can be concentrated on methods of improving the hexanes-plus fraction which is usually about one-third of the 26-70 volume. It may become necessary for natural gasoline manufacturers to apply refinery methods for upgrading the hexanes-plus fraction of natural gasoline. Serious study should be given to the application of the various polymerization and reforming processes to this purpose.

The octane number loss caused by many sweetening processes can be greatly minimized by use of the copper sweeteners now going into such general use. To illustrate the magnitude of the possible losses the following example is cited for a plant handling a low vapor pressure natural gasoline:

	Octane number	
Natural gasoline—	No. TEL	1 cc. TEL
Sour	66.4	75.2
Doctor sweetened	64.7	73.0
Copper sweetened	66.4	75.0

It has been pointed out that sulfur content has a pronounced effect on lead response. Economic methods for sulfur removal will certainly improve the value of natural gasoline blended in ethylized motor fuels. The superior lead response and the blending octane number effect of natural gasoline will go a long way toward curing the declining margin of antiknock superiority over refinery gasoline. However, as the trend continues toward higher octane numbers, natural gasoline will lose relatively more and more unless ways are found to participate in the same trend.

Antiknock Testing Methods

For the past several years various organizations interested in gasoline and automobiles have been conducting road and laboratory tests to determine the knocking characteristics of cars and motor fuels. Many varieties of gasoline were used in the tests but natural gasoline was not among them. There were various poly gasolines, benzol blends, ethylized gasolines, straight-run gasolines, filling station gasolines, reference fuels, and various cracked gasolines but no natural gasoline.

Now it is a statistical fact that natural gasoline represents one-twelfth of the nation's motor fuel supply. It is very important to the natural gasoline industry that the antiknock behavior of natural gasoline be included in these studies that are used to establish commercial standards. The existing standard knock-testing methods are woefully inadequate for the testing of volatile gasoline. We have encountered vapor-locking in our laboratory with 10-pound motor fuels on hot summer days. It can be easily imagined what would happen to 20-pound natural gasoline.

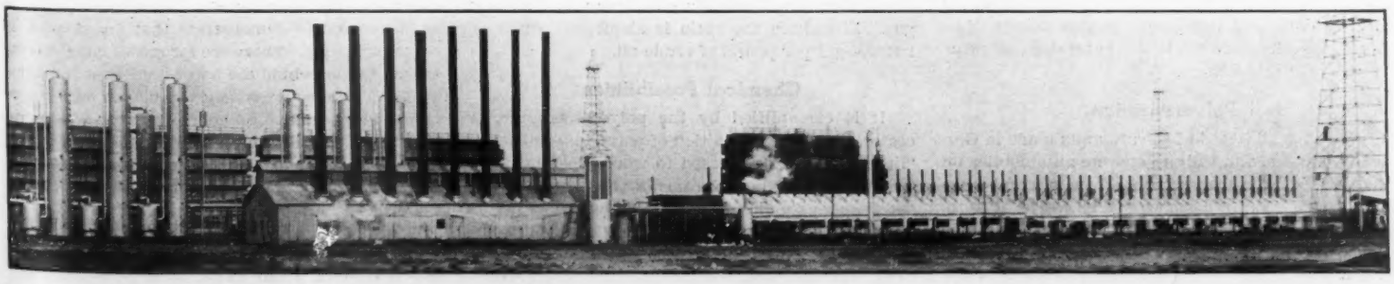
Octane number has become a specification for export shipments of natural gasoline with a great assortment of modified methods to measure this characteristic. As a preview of the confusion that will arise the following tabulation shows the octane number determinations on one sample of 22-pound gasoline by a variety of test methods by one operator in one laboratory:

Method	Octane number
A	74.1
B	76.1
C	72.2
D	74.2
E	73.0
F	74.3

And the following tabulation shows the octane number determinations on samples of another natural gasoline by one method in different laboratories:

Laboratory	Octane number
A	75.6
B	73.0
C	76.4
D	77.1
E	76.3
F	75.1

Thus, for two very important reasons the natural gasoline industry should take an active part in the current studies pertaining to the antiknock behavior of cars and gasolines. (1) Commercial testing methods and standards may be established without due consideration of natural gasoline. (2) Antiknock testing methods applicable to natural gasoline will be needed. Two lesser reasons are (3) Contact with such work provides valuable knowledge of trends and viewpoints pertaining to gasolines and engines. (4) The specialized knowledge of natural gasoline men can be helpful to the other workers. The Natural Gasoline Association of America could very well afford



Phillips Petroleum Co.'s gasoline plant at Edmond, Okla. The plant's capacity was recently enlarged by installation of 26 compressors

to designate some capable, independent laboratory to represent it in this important work.

Iso-Pentane

In a recent article we have called attention to the fact that iso-pentane is an ideal blending agent in the manufacture of 100-octane number aviation gasoline. As a matter of fact, Phillips Petroleum Co. has marketed millions of gallons of "iso-pentanized" aviation natural gasoline. The process of manufacture consists of separating the natural gasoline into butanes and lighter, pentanes and pentane-free natural gasoline. The iso and normal pentanes are separated and the iso-pentane blended with the pentane-free natural to the conventional seven-pound vapor pressure specification. Iso-pentane, with its comparatively low vapor pressure of 20 pounds and exceptionally high octane number of 90, combined with its outstanding susceptibility to lead, would be an ideal stock in many other difficult blending problems.

The removal of iso-pentane from natural gasoline would, of course, lower the quality of the residual natural gasoline to a slight extent. For equal vapor pressure products the additional butane that could be incorporated would offset the loss to some extent. However, the essential fact is that the superior qualities of iso-pentane are largely lost among the relatively inferior other ingredients of natural gasoline. There is the distinct possibility that the natural gasoline industry and its customers would both profit if iso-pentane were segregated as distinct commodity of commerce.

It is noteworthy that three of the major constituents of natural gasoline, iso-pentane, iso-butane, and normal butane, with modest additions of tetraethyl lead, have octane numbers much in excess of 100. Is it too difficult an engineering feat to design airplane fuel tanks and systems to handle these materials? Aviation interests are working on supercharged cabins for stratosphere flying. Certainly that is a much more difficult engineering problem than the fuel system problem. Here is an ideal market waiting to be tapped. It is a quality market where the quality is worth something to the customer. The distribution of aviation gasoline will probably never present the same problems as motor fuel distribution since although there may be a dozen filling stations at each airport there cannot be an airport at each street intersection.

You may think this is a pipe dream but the only reason butane and pentane cannot be used as aviation gasoline is because it has not been done before. Admiral Byrd considered the use of propane as aviation gasoline for his Antarctic expedition until he found that at minus 100° F. it took almost as much heat and just as much trouble to vaporize propane as ordinary aviation gasoline.

In the meantime the literature is full of references to processes which convert iso-butane, butane, and their refinery cousins, to extremely high octane number aviation gasoline. One process (alkylation) has been described by means of which ethane and iso-butane can be converted to neo-hexane (2-2 dimethyl butane) which has 97 or better octane number. Other synthetic hydrocarbons of high octane number are possible. It may thus be said with some assurance that when better gasolines are made the natural gasoline industry will make them.

Polymerization

We have all heard of the attempts made in Germany, France, and Italy to operate automobiles on gas derived from charcoal, coke oven gas, and other fuel gases. Natural gas would be an ideal automotive fuel. One hundred cubic feet of natural gas would propel an automobile as far as would a gallon of gasoline. Thus at the prevailing prices (taxes included) a dollar's worth of natural gas would propel an automobile five times as far as a dollar's worth of gasoline. Unfortunately, the form-utility of natural gas is very adverse to its use as an automotive fuel. Thus, if natural gas were compressed to a pressure of 3,000 pounds per square inch the gas tank would have to be about four times as large as the present gasoline tank to hold as many B.t.u.'s.

The polymerization processes change the energy available in natural gas from the gaseous to the liquid form and thus create new markets for natural gas. The extreme economic importance of such a transformation is exemplified by the manufacture of 100-octane aviation gasoline with butane as the raw material. Butane is almost but not quite a liquid. Its octane number is in excess of the requirements for 100-octane number motor fuel. Thus, the only essential change that is effected by the expensive processing required to make iso-octane is to change the boiling point from 27 to 206° F. Basically, the polymerization process merely converts gaseous energy to the liquid form.

One way of dramatizing the economic significance of the polymerization processes is to calculate the amount of motor fuel that could be made from the individual hydrocarbons of natural gas if they could be converted quantitatively to gasoline. The "if" in the preceding sentence is a very big one. For example, the conversion of methane to liquid products has not progressed nearly so far as the conversion of ethane, and butane. Another big problem is the extraction of the various hydrocarbons as poly feed. The economic size of plants is another vital problem. However, the following tabulation shows the quantity of motor fuel that would be obtained from 1,000,000 cubic feet of average natural gas if all the hydrocarbons could be converted quantitatively into motor fuel and making no provisions for fuel requirements:

Methane, gals. motor fuel	4,900
Ethane, gals. motor fuel	1,260
Propane, gals. motor fuel	1,050
Butane, gals. motor fuel	590
Pentanes plus, gals. natural gasoline	800
Total gallons	8,600

Polymerization processes have been described in the literature which can convert ethane, propane, and butane with weight yields ranging from 10 to almost 100 per cent. With the high yield processes natural gas can be made to produce four times as much gasoline as is now obtained. The product would be a finished motor fuel of high octane number, low vapor pressure, and suitable volatility. Of course, it will take many years to perfect and apply the polymerization processes to their fullest economical advantage. There are innumerable problems of chemical, engineering, economic, legal, and financial nature to be solved. Thus, it may be stated that the preceding calculations represent an objective which can never be fully attained.

If it should develop that the application of these gas conversion processes will ultimately enhance the value of natural gas it is conceivable that the oil industry will begin hunting for natural gas everywhere as thoroughly as has been done in West Virginia, where for every pound of crude oil produced there are also produced 5.2 pounds of natural gas. Elsewhere the ratio is about 0.4 pound of natural gas per pound of crude oil.

Chemical Possibilities

It is exemplified by the polymerization processes, the classic definition of paraffin as meaning "little affinity" has ceased to worry the chemists. Chemists everywhere are turning their attention to petroleum as a raw material for new and better and cheaper chemicals. Several large oil companies have entered the chemical manufacturing field. For example, the manufacture of iso-octane is an out-and-out chemical process where it is noteworthy that those companies who were already in the chemical field have thus far made the most rapid progress. One of the country's largest chemical companies manufactures innumerable synthetic organic chemicals from hydrocarbon raw materials. Incidentally, in 1937, that concern invested over $15,000,000 on construction work in its chemical division and cited as the first item of its 1937 construction program "Installation of pipe lines to, and the erection of raw material processing equipment at chemical plants."

The refinements of the polymerization processes such as alkylation, dehydrogenation, isomerization, and selective polymerization open new fields of synthesis to the chemical industry which coupled with the other steps of synthetic chemical manufacture will lead to many new products.

In a recent issue of Life there appeared a picture of German tires made from Buna rubber. In Germany the raw materials for this synthetic rubber are coal and limestone, which are processed to yield butadiene which in turn is polymerized to make the synthetic rubber. Butadiene is the doubly unsaturated hydrocarbon corresponding to normal butane. As another example of the chemical possibilities of the light hydrocarbons, we have recently described a series of resins made from olefins and sulfur dioxide. Other companies are giving serious attention to hydrocarbons as the basis for new plastics manufacture.

As a general rule, the more nearly pure the hydrocarbon raw material the more economic will be the chemical manufacturing process. Thus, the natural gasoline industry with its great skill in the extraction and separation of the lighter hydrocarbons, with its large raw material resources, and with cheap fuel is in an excellent position to serve the chemical industry.

The use of liquefied petroleum gas, or natural gasoline, as a direct motor fuel has received much attention. Considerable progress has been made with automotive equipment and with stationary equipment. There are many conflicting economic aspects of this development which require careful study. However, here is another market for light ends which should be intelligently cultivated.

Proration and the growing practice of unitization have introduced new problems for the natural gasoline manufacturer. The scientific study of reservoir fluids and formations is bringing about an entirely new concept of natural gasoline production. Such developments as crude oil rectification, maximum gas-oil ratios, spacing regulations, distillate production, and many others require, more than ever before, the utmost cooperation between the oil producer and the natural gasoline manufacturer. A striking example of such cooperation in practice is found in East Texas where the oil producers take their oil on a schedule designed to cause a steady field gas production for the benefit of the natural gasoline plants.

Conclusion

In these few paragraphs it has been possible to mention but briefly a few of the problems and possibilities of the natural gasoline industry. There are many others and much more could be said about the ones mentioned. Nevertheless, enough has been said to demonstrate that imagination is very much alive. There are far more achievements ahead of than behind the natural gasoline industry.

Nowadays we are so engrossed with merely surviving that we have no energy left for vision and foresight. There is more rejoicing over a nickel saved than a dollar made. The time-honored salutation, "Another day, another dollar" should be modernized "Another day, no sheriff yet."

Today I am wishing for the day when IMAGINATION, INITIATIVE, and INDUSTRY will have free play with a fair expectation of the fun and profit to be obtained from constructive progress.

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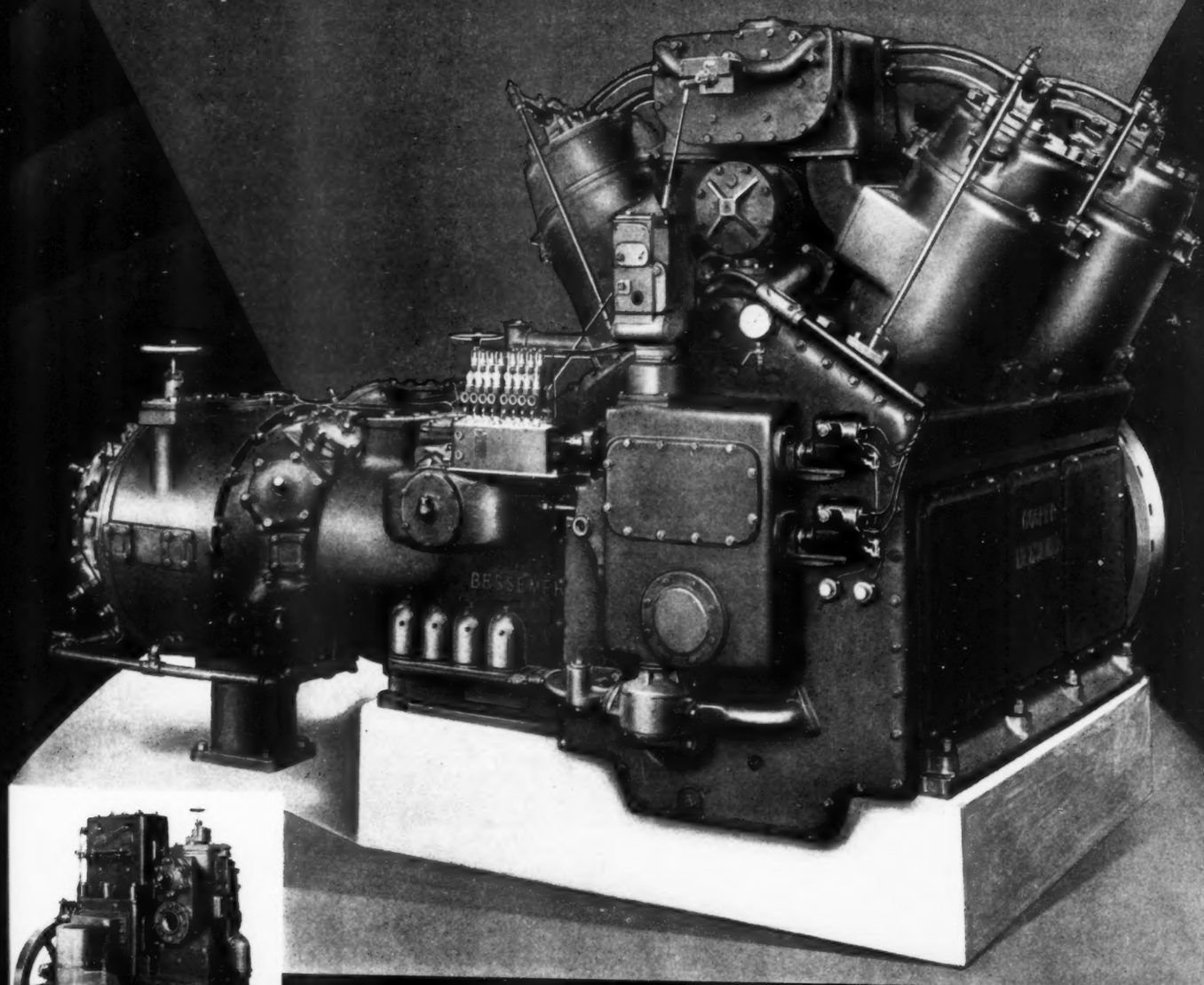

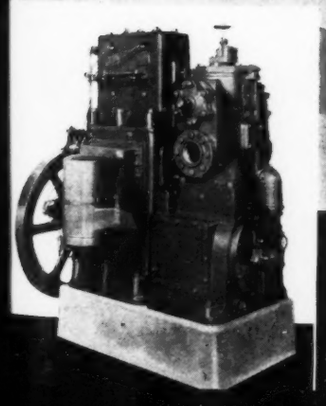

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Reworking of Water Wells in East Texas Gaining Momentum

By GEORGE WEBER

Rapid salt water encroachment constitutes one of the principal current studies of many East Texas engineers. Although evident a year ago, the increase in water production caused no great concern to those operators not immediately affected. During 1937, however, a gain of over 60 per cent in the number of wells making water, and a total daily water production which practically doubled, brought the problem sharply to the attention of not only those west side operators, but all East Texas producers.

At present, with water production exceeding 100,000 bbls. daily, action is taking the place of discussion, and many company engineers, who see the alarming effect which such encroachment must shortly exert on reservoir pressure, are advocating immediate combative measures.

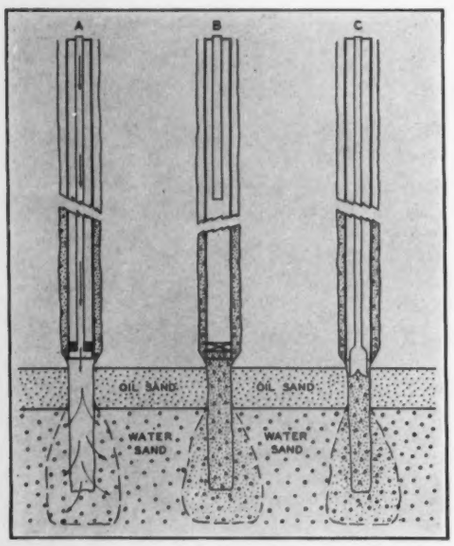

Fig. 1 — Squeeze cementing water wells. (A) High pressure on cement slurry forces it into water sand. (B) Cement allowed to set under high pressure. (C) Cement plug drilled into top of oil sand.

Methods for checking the increasing threat to production may take three general forms. The marginal wells making high percentages of salt water may be plugged and abandoned, thereby greatly reducing the total daily water withdrawal. Salt water may be returned to the lower Woodbine sand either at the point where it was originally produced, or along a strip of wells a short distance west of the productive limits of the field. The third approach to the problem, and the one which is most widely adopted to date, is that of plugging back water wells in an effort to maintain oil production at a lower salt water displacement rate.

Voluntary abandonment of any large number of the wells making over 90 per cent of water is not highly probable for the time being. Return of salt water to the formation, while the subject of some study and application, does not show indications of becoming a major move in the near future. Even the work in plugging back, although well under way, has not yet approached a scope where it shows appreciably in checking the rapid encroachment of Woodbine water. This last phase of work, however, is gaining wider adoption weekly, and may soon begin to show some effect in the field as a whole.

None of the three general approaches to the problem alone is considered sufficient to meet the problem. If the present rate of increase in water withdrawal is to be checked to any extent, it will doubtless require abandonment of many of the salt water wells which are beyond improvement through plugging back. The return of much Woodbine water to the formation in order to offset the increased production will also be necessary if the withdrawal curve is to be flattened. But the reworking of many hundreds of wells which are in the initial stages of water production is probably the most necessary immediate step to be taken.

Considerable work in plugging back water wells has been under way during the past year. The wells thus reworked were, in a majority of cases, in the upper brackets of water production, however. The work in plugging back has lagged far behind the influx of water, for to have the situation under control would necessitate the plugging back of all wells practicable in the high water production class, and to maintain a plugging program on wells as they begin making small amounts of water.

During 1937, a total of 100 wells were reworked.

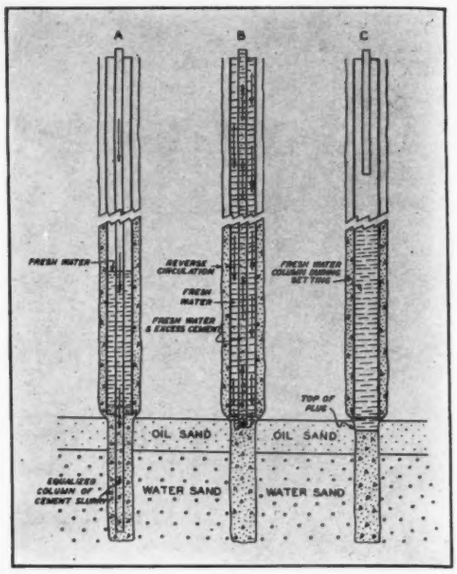

Fig. 2—Balanced column method of cementing. (A) Cement column equalized in bottom of hole. (B) Tubing withdrawn to point 2 feet higher than desired top of plug and excess cement removed by reverse circulation. (C) Tubing withdrawn up hole and water column on cement plug while settling. Two feet of oil sand left exposed.

Of that total 45 wells showed a 100 per cent water shut-off; salt water was partially shut off in 30 wells, and the remaining 25 wells were not improved. Statistics for 1938 show, so far, an improvement in that record. Reports on plug-back jobs undertaken since the first of the year show that of a total of 17 wells reported, 10 were successful, six partially shut off and one was not improved.

Seven of the 17 wells reworked made over 50 per cent water before plugging back, and the total daily cut in water production due to the reworking was from 1,214.4 to 51.6 bbls. Statistics showing the amount of reworking are considerably out of date as compared with the volume of reworking under way at present. This is due to the fact that reports on the success of the plug-back are not filed until at least 15 days have elapsed.

Plug Back Methods

Since the Woodbine sand in East Texas varies in porosity and thickness throughout the field, the procedure in plugging back wells must also vary. Work to date falls into three general classes. Some wells are squeezed under high pressures through use of cement retainers, and the plugs are later drilled out to the desired depth. Others are cemented by the balanced column method, whereby the plug is set at the desired depth, exposing only enough oil sand above the plug to produce the

(Continued on Page 120)

TABLE 1—RESULTS OF WELLS REWORKED SINCE JANUARY 1, 1938

Daily production				Top of sand	Total depth	Plug-back depth	Pressure applied (pounds)	Cement Used (sacks)
Before oil	Before water	After oil	After water					
...	...	20	0	....	3,601	3,588	500	12
20	34.5	20	11	3,669	3,676	3,662	3,000	15
20	9	20	0	3,697	3,723	3,698	....	200
46	368	46	10.2	4,147	4,326	4,275	....	....
46	32	46	1.3	4,170	4,362	4,275	....	....
20	.4	20	.4	3,681	3,692	3,679	....	....
116	94	116	0	6,005	6,015	5,990	3,600	10
46	184	46	.5	4,222	4,314	4,296	1,500	85
20	10	20	0	3,665	3,670	3,658½	1,500	300
20	13	20	0	3,707	3,729	3,709	1,600	300
20	8.5	20	.1	3,657	3,668	3,669	1,650	190
46	138	50	2.1	4,220	4,295	4,286	1,750	125
20	3	20	0	3,606	3,635	3,608	3,500	150
20	10	20	0	3,693	3,693	3,663	....	200
20	80	20	0	3,707	3,720	3,708½	....	300
20	150	20	26	3,628½	3,640	3,628½	3,000	35
20	80	20	0	3,710	3,720	3,707	....	300

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well. Still others are reworked by cementing perforated or blank liners in the hole, and perforating the liner successively downward until the oil sand is reached. Needless to say, each method has its advantages and may be best adapted to certain wells.

Regardless of the procedure employed, a very important factor in successful reworking of East Texas wells is a thorough knowledge of the well before any work is begun. Drillers' logs have been found in many cases to show little information, and as a rule that information has been incorrect. This is particularly true of wells which were drilled at the height of the boom, and later transferred to new ownership.

The first requirement is that the hole be cleaned thoroughly and reconditioned. In some cases difficulty has been encountered in pulling liners, but this is usually simplified by washing with oil. After the hole has been cleaned of junk, and sand pumped for cavings, the next step is to determine correctly the top of the sand, bottom of the hole and the level of the water table in the sand surrounding the well. An electrical survey of the hole, made after washing it with fresh water, is used successfully by many operators, as it shows clearly the oil-water interface and the top of the sand. In addition, if the well is producing from sand containing shale breaks, it is necessary the exact location of such breaks be determined. The plugging of oil sand sections between shale breaks may result in loss of considerable recoverable oil which will be trapped by channelling of salt water around the section. Only after the hole has been cleaned and reconditioned, and the oil and water sand tops determined and the total depth checked by careful line measurements, is the operator prepared to proceed with a plug-back job. Furthermore, until this is done, the operator often cannot be reasonably certain he has enough oil sand in the well to justify the expense of reworking it.

As results during the past two years have shown, many wells are beyond improvement through plugging back, due to insufficient oil sand remaining above the encroaching water. In the economics of well reworking, however, some operators are inclined to discount the benefits to be derived over a long period, and the effect of individual operations on the life of the field as a whole. Costly reworking of wells which are restricted to a daily production of 20 bbls. appears economically unsound unless these factors are considered.

A good example of looking to the future is shown in the work of General Crude Oil Co., which has production in the densely drilled Gladewater area. This company began plugging back water wells in June, 1936, with the results shown in Table 2. All wells with the exception of Nos. 1 and 2 Blackman were squeeze jobs with high pressures. No. 1 had 46 feet of sand. The hole was circulated with water and 15 sacks of cement pumped in and equalized at the bottom of the hole. An excess of 3½ sacks was washed back, and the plug was set at a pressure of about 125 pounds for three hours. After that period the water column in the filled hole was left for three days, and when the well was swabbed in, it was found the top of the plug was 1¼ feet below the top of the oil sand. The well is still making pipe line oil. The second well, No. 2, was reworked in the same way.

The figures representing percentage of water after plugging back are the present production of water. Many of the wells now making small fractions of water were flowing pipe line oil shortly after reworking. Interesting to note is the decline in the maximum pressures which operators were able to get on wells in the same presses as the water encroachment proceeded. This has been noted in plugging back through the west side water belt of the field.

TABLE 2—REWORKING RESULTS OF GENERAL CRUDE OIL CO.

Date reworked	Lease	Well No.	Top sand	Total depth	Percentage water—Before	Percentage water—After	Amt. cement sacks	Pressure applied
6- 1-36	Graves	4	3,675	3,679	20	2	35	3,500
7- 8-36	Graves	8	3,648	3,656	14	2.2	25	2,800
5-28-37	Martin	1	3,635	3,639	37	(*)	270	3,500
6- 7-37	Blackman	1	3,590	3,636	14	(*)	11½	.....
11- 7-37	Blackman	2	3,612	3,620	15	(*)	10	.....
11-13-37	Williams	7	3,640	3,645	18	(*)	300	2,500
11-26-37	Graves	11	3,661	3,666	90	†12	270	1,800
11-29-37	Graves	10	3,651	3,656	80	35	270	2,000
12- 2-37	Graves	7	3,684	3,688	60	(*)	300	1,800
12- 6-37	Graves	5	3,664	3,667	42	5	300	1,800

*Pipe line oil. †Water due to leak in casing. Woodbine water 100 per cent shut off.

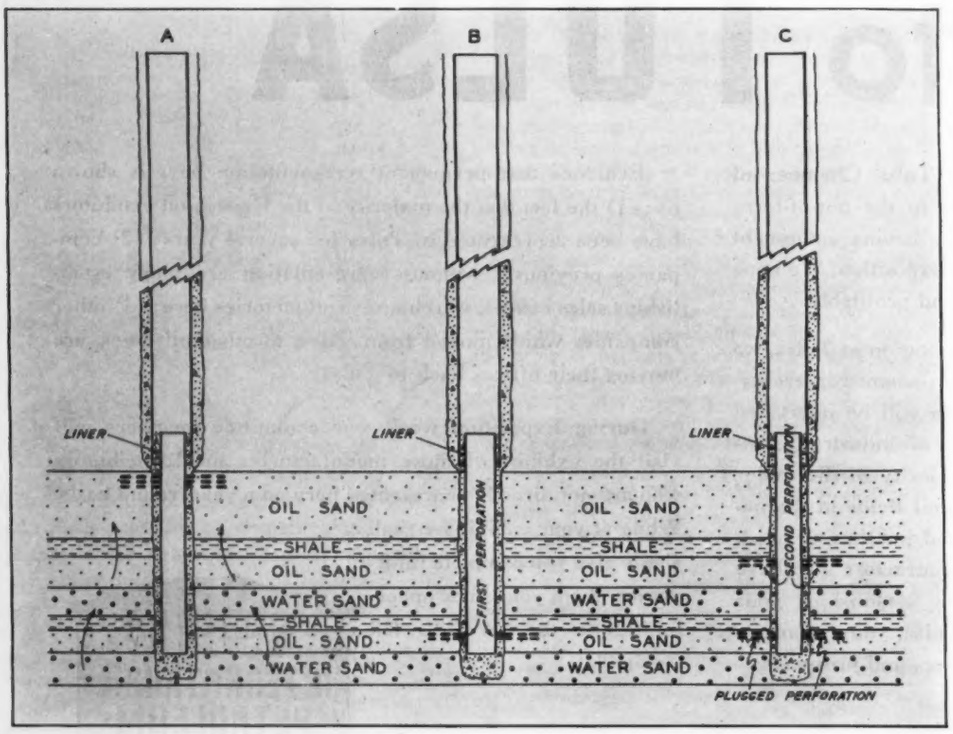


Fig. 3—Selective perforation. (A) Wrong method. After liner correctly set through oil sand, water sand and shale breaks perforating in top of oil sand causes subsequent water encroachment around lower oil sands, thus trapping the oil. (B) Correct method. Perforate in top of deepest oil section, recovering oil from that sand before plugging. (C) When deepest sand completely water-flooded, squeeze perforation and shoot in next higher oil sand.

Squeeze Cementing

Current operations show squeeze cementing of water sand under high pressures is being widely adopted in the field. This method is finding considerable use in the densly drilled sections, such as the Gladewater area, where salt water is being produced in considerable quantities. The procedure in squeezing varies with the porosity and amount of water sand in each well. A large number of squeeze jobs have been successful in the field, and new methods arising from the experience gained may become important factors in future reworking practices.

The procedure most commonly followed in squeeze jobs employs the use of a cement retainer. This packer on the end of the tubing string is set near the casing seat. After the retainer is set with the pump, fresh water is pumped into the formation. As a rule in East Texas, 15 bbls. is sufficient fresh water to break down the formation pressure. Pressures generally build up to about 1,200 pounds and then break down to 700 or 750 pounds. The water is followed by a retarded cement slurry which is forced under high pressures into the formation, apparently following the fresh water into the water sand instead of entering the oil saturated sand section.

In using retarded cement slurry, operators found the maximum pressure which could be obtained varied considerably from well to well. The time element in maximum pressures, as illustrated in Table 2, also added to difficulties as the water came in further. When the desired pressure in a squeeze job could not be obtained by ordinary methods, operators resorted to stage cementing; allowing a slug to partially set before squeezing a second stage behind it, until the required pressure was reached.

At that point, the tubing is unscrewed from the retainer, lifted, and flushed clean of cement by reverse circulation. The retainer maintains the pressure on the cement plug while setting. (Figure 1).

A successful shut-off of the water sand by this method may, however, be nullified by carelessness in drilling in the well. Care should be exercised if cable tools are used, that the shock does not crack the plug, or loosen it from the face of the sand at some point. Any such break obviously renders the work useless. Many operators advocate drilling in with a rotary bit on the tubing string, using oil as a circulating medium. Reverse circulation in this case is also found to have advantages. Other operators drill in with a dry hole, which aids them in exposing a minimunm amount of oil sand.

Use of Aquagel

Due to the increasing difficulty in obtaining high pressures on water sands with cement slurry, a new method of squeezing is being tried in East Texas, with considerable success. It involves the use of Aquagel, a colloidal material, mixed with

the retarded cement. This addition cuts down the amount of cement slurry scavenged by the formation, gives the slurry more body by building up resistance to passage through the sand, allows the squeezing job to proceed at higher pressures.

Since March 1, Halliburton Oil Well Cementing Co. has performed 18 squeeze jobs in the Gladewater area alone, using this new mix. Of the total, results after 15 days have been reported on eight, as shown in Table 3.

TABLE 3—RESULTS IN REWORKING WELLS BY SQUEEZING WITH CEMENT AND AQUAGEL

Job No.	Percentage of water production	
	Before	After
1	48	48
2	50	25
3	30	30
4	95	6
5	98	3
6	100	87
7	98	0
8	95	0

Two of the wells reported no improvement. Two had complete shut-off of salt water. The high percentage of water production in the wells originally should be noted when comparing results with other work. Only two of the eight wells were making less than 50 per cent, and five were making over 90 per cent.

The average time required to cement a well and wash out the excess cement, ranges a little over an hour. To date 80 per cent of the mix used has contained 2½ pounds of Aquagel per sack of cement, with other mixes ranging down to 1 pound per sack. The cement and colloid were mixed at the plant.

Approximately 200 sacks of cement are used on each job. Some squeeze jobs took 16-pound slurry all the way, while others started with a thinner mix and increased the weight as the cementing proceeded. In the latter case, it is common to begin with 50 sacks of 13½-pound slurry, increasing to 14½-pound mix for the next 50 sacks and finishing with the regular 16½-pound weight.

Of the 18 jobs completed to date in the Gladewater area using the special cement, two failed to obtain the desired high pressure of 3,000 pounds. Some wells readily built up to that pressure. A short shut-down period near the end of the cementing job was successful in most cases in obtaining the high pressure. When the required amount of cement has been pumped into the tubing and followed by water, the pumps are shut down with about 4 bbls. of cement still in the tubing. After about two minutes shutdown, another barrel is pumped in. If that does not raise to the required pressure, it is followed by a five-minute shutdown and a third stage is usually sufficient to bring it to 3,000 pounds. From that point, the job proceeds like an ordinary squeeze job, with tubing disengaged, raised and flushed clean.

Formerly, 72 hours was considered enough time for setting. This has been increased recently to from four to six days, during which time the retarded cement theoretically reaches 98 per cent of its maximum strength as contrasted with 80 per cent after 72 hours.

Results of this type of squeezing do not show entirely successful results in all cases. The fact should be considered that the ones reworked to date were in the high water production class and less probable for successful water shut-off. Similar methods applied to smaller water wells should be expected to show better results.

Balanced Column Method

The characteristics of some wells making water in the field are such they do not require high pressure squeezing to shut off water. They can be successfully reworked by plugging back to within a few feet of the top of the oil sand. A very accurate measurement of the bottom of the hole, top of the water sand and top of the oil sand is necessary. The tubing is run to the bottom of the cleaned hole, lifted enough to take up the stretch, and measured at the surface. With the tubing suspended 1 foot off bottom, the measured amount of cement is circulated into the hole after fresh water. When the correct amount of slurry calculated to plug off the water sand, is equalized in the bottom of the hole, the tubing is raised to a point 2 feet higher than the desired top of the plug. Reverse circulation then flushes the excess cement from the hole and the tubing is raised 200 feet in order to be well out of the cement. In case cement was not returned during reverse circulation, more should be added. From 500 to 600 pounds may be applied to the well at the surface, in addition to the hydrostatic pressure of the water column on the cement plug while setting. The pressure is retained for from 48 to 72 hours. (Figure 2). Care should be taken to see that no air pockets occur in the cement at the bottom of the hole.

A major oil company in the field followed this procedure in reworking five wells. Of the five, one was making about 98 per cent water and the remaining four about 10 per cent before plugging back. Complete success was obtained with all five wells and they are now making pipe line oil. The method has an advantage, in that the plug, once set, is not disturbed in any way by drilling in, for a little swabbing is all that is ordinarily necessary to bring the well back to production provided the proper amount of oil sand was left exposed above the top of the plug. Wells, to be treated successfully in this way, must have a definite oil sand section above the water, and measurements must be made very carefully. The procedure is adaptable particularly to reworking wells in their early water production stages.

Another operator, plugging back south end wells, has had complete success in 14 out of 22 cases. The wells, before reworking, made from 5 to 50 per cent water. In the successful jobs, the oil sand ranged in thickness from 2 to 31 feet, but those which showed best results had between 15 and 25 feet of oil sand. Pressures approximating 500 pounds were held on the top of the water column in the hole during setting of the cement plugs.

Selective Perforation

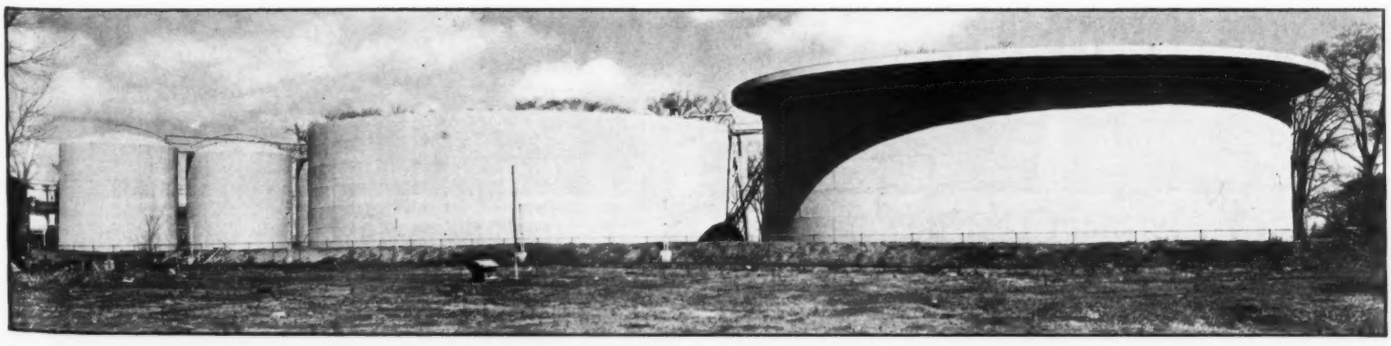
The setting of blank or perforated liners in the bottom of water wells and perforating for production is followed to some extent in shutting off salt water in the field. This method has an advantage where shale breaks occur in the Woodbine sand, and oil sand is located between two or more of the impervious sections. It can be used also when the origin of the water in the well is unknown.

As an example of the perforation method, a well on the west edge of the field, making 98 per cent water, was cleaned and conditioned and a liner run to the bottom of the hole, centered and cemented. The liner was then perforated a foot at a time successfully downward, until the top of the sand was reached. The water was shut off and the well will flow until water encroaches to the top of the sand during the well's final productive stages.

In case of shale breaks, the perforated liner offers a good method of control. As in Figure 3, the liner, once set, may be perforated in the top of the deepest sand section. After that section has been entirely water-flooded, the water can be plugged off by cementing through the perforations and shooting in the next higher oil sand section. In this way much oil may be recovered, which would otherwise be trapped by water encroaching around the shale sections. The principal advantage in the selective perforation method is that a minimum of oil sand at the top of the body can be perforated, thus postponing water production until the well has reached its final productive stages. Under present regulations, 6 inches of oil sand is sufficient to produce a well's allowable in the field.

One major oil company in East Texas has inaugurated a program which might well be applied throughout the field. As soon as a well operated by that company reaches the 10 per cent water production stage, it will be plugged back. Many other operators are engaged in plug-back programs which will cut their water production appreciably.

But what effect the current reworking of water wells will have on the total withdrawal is not known. The volume of such work is still relatively insignificant in comparison to the number of wells which need to be plugged back. Reworking will not remedy the situation in all cases. It is, however, the principal means at present for the operator to use voluntarily in combating the effects of increased water production. Continuance of water production at the present rate of increase presages the imposing of drastic regulations on the field as a whole, taking the possible form of a per well allowable based on total oil and water withdrawal.



Battery of gasoline tanks serving bulk plant of St. Lawrence Stations, Ltd., at Montreal, Quebec, Canada. The vapor space of all tanks is connected with the balloon-type roof on the 100,000-bbl. tank in the foreground.

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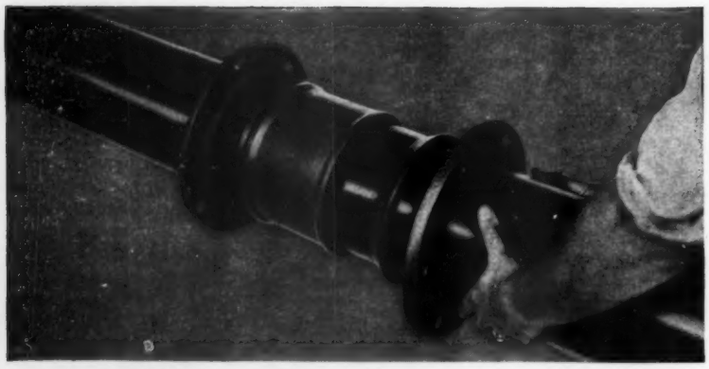

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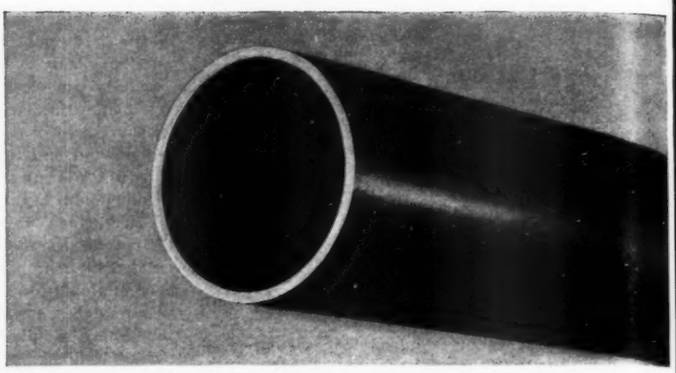

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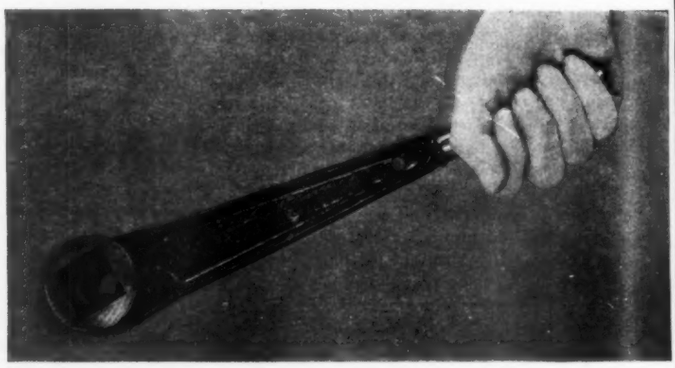

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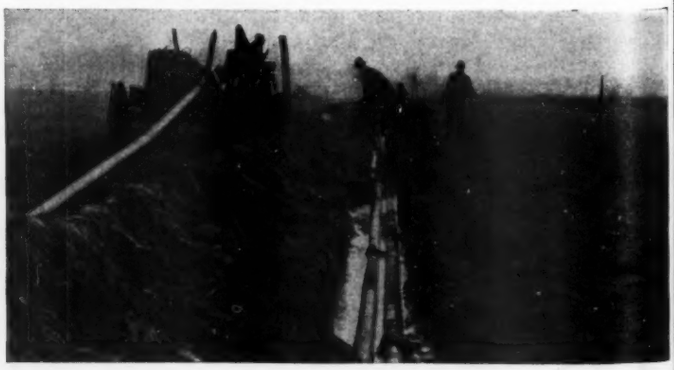

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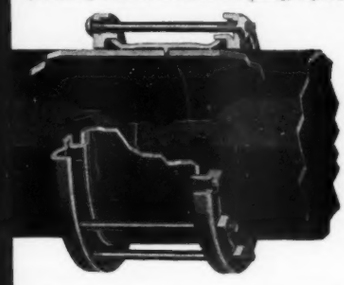

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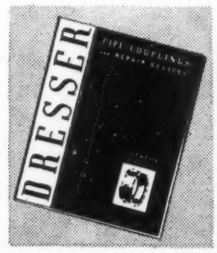

DRESSER

PIPE COUPLINGS

Problems of Modern Deep-Well Pumping

By C. J. COBERLY
Kobe, Inc.

A well has been drilled in California to a depth of 15,004 feet. A number of wells in various fields in the United States are producing from depths in excess of 10,000 feet. Marsh[1] stated in 1928 in a paper "Deep-Well Pumping in California" that, "it is uncommon to pump wells at depths greater than 5,000 feet." Since that time many deep sand fields have been developed which are now being pumped or soon will have to be pumped. It is probably safe to state today that it is uncommon to pump wells from depths greater than 7,500 feet, but with drilling programs in process below 10,000 feet the need for pumping means which will handle large volumes of fluid at 10,000 feet or more is a reality which must be given consideration.

Furthermore, fluid capacity in deep wells is of greater importance than in shallow wells because of the greater drilling and lifting costs and hence the greater revenue which must be derived from the well to make its operation profitable. Wilhelm[2] states that "hydraulic pumps, long-stroke pumping units and double acting pumps have not as yet justified their early promise of meeting the problem of successfully lifting large quantities of fluid from deep wells." There were,

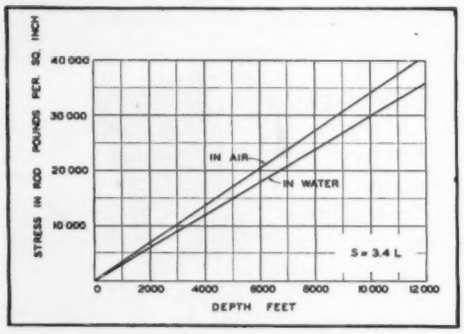

Fig. 1—Rod stress as a function of depth, rod of uniform cross-section

$$S = 3.40\ L \text{ in air} \qquad (1)$$

$$S = 2.97\ L \text{ in water} \quad \text{Sp. g. } 1.0$$

Where L is the length in feet

as of June 1, 1937[3], 37 wells in the world which were more than 10,000 feet in depth.

This paper will point out some of the important problems and limitations of the present pumping methods on the assumption that the reader is familiar with the equipment customarily employed in pumping. Such equipment will not be described in detail except in connection with some of the more recent developments which may be applied to deep wells.

In this first portion of his article, read before the spring meeting of the American Society of Mechanical Engineers, at Los Angeles, Calif., March 23, the author discusses vibration, overloading and other pumping problems, and presents approximate relations which are useful in design of pumping equipment. The remainder of the article, in which late-type pumping methods are described, will appear in the May 19 issue of The Oil and Gas Journal.

Sucker rod pumps are the oldest and commonest form of pump and have been used from the 62-foot Drake discovery well in 1859 to the present deepest rod-pump well at 8,287 feet at Rosecrans, California. The original rods were made of wood joined together with metal fastenings. Present rods are made of especially selected straight carbon or alloy steels and in some cases are fully heat-treated.

Vibration Problem

The transmission of power through an oscillating pump rod involves many variables, some of which cannot be fully controlled. The effect of others may be observed in the action of the pump, but are difficult to predict because of the lack of a complete rational solution. The oscillation has a low frequency, high amplitude and is of approximately harmonic shape with fairly high damping. The mass of the system is distributed and the time of stress transmission is a high percentage of the period of oscillation. Reflected stress, natural periods of vibration and their harmonics and certain transient phenomena complicate the problem and make its solution difficult. Kemler[4] has given a valuable paper on this subject which gives a mathematical analysis of the problem with electrical analogies which assist in its study. Kendrick and Cornelius[5], Reiniets[6], and Slonneger[7] have recently presented valuable contributions to the problem leading to an exact solution.

This paper will point out some approximate analyses of the sucker rod problem which may be applied to the selection and operation of pumps of this type. For static loading, which slow-speed pumping approximates, the relations given are quite exact, but for dynamic loading they are only approximate due to the assumptions made. They do, however, show the trend and indicate optimum conditions. They are simple to apply and are offered with these limitations for their value in selecting equipment and predicting results.

As production is taken from greater depths the limiting factor on the load that can be carried and hence the amount of fluid that can be lifted is the permissible maximum stress and range of stress which the sucker rod will stand without excessive breakage. It has been shown by Wescott[8] that the endurance limits of sucker rod steels vary widely. The limits of all steels are greatly reduced under corrosive conditions.

TABLE NO. 1—PHYSICAL PROPERTIES OF SOME SUCKER ROD MATERIALS

Material:		Yield point	Air endurance	Brine endurance	H. S. brine endurance
Wrought iron		42,100	30,400	19,600	16,400
S.A.E. 4130	Q1550° F. D1150° F.	111,300	70,100	26,900	14,100
S.A.E. 4615		58,500	48,600	33,100	19,900

Many wells are operating with sucker rod stresses computed from polished rod dynagraphs of 30,000 pounds per square inch or more. This would seem excessive except in wells free from corrosion.

Rod Sizes

Sizes most commonly used are ⅝-inch, ¾-inch and ⅞-inch. One-inch and 1⅛-inch are now listed as A.P.I. sizes. Other sizes have been contemplated and will be required if producing by the

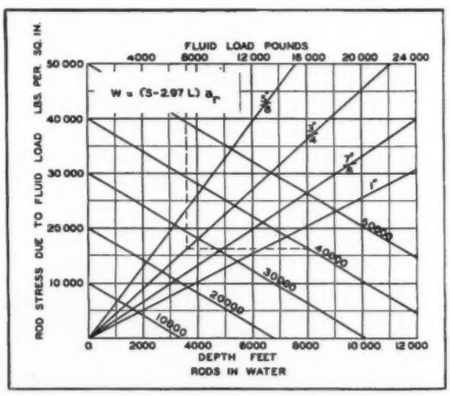

Fig. 2—Rod stress due to fluid load for a given total rod stress, size and length

$$W = (S - 2.97L)\ a_r \qquad (2)$$

Where a_r is rod area, square inches.
W = permissible fluid load.

rod pumping method is to keep pace with present-day drilling programs.

The total load is the rod load plus the fluid load and since the rod load is proportional to the depth the net load or fluid load is the total load capacity of the rod minus its own weight.

Stress Due to Its own Weight.— (Uniform Cross-Section). Permissible fluid load with rods of uniform cross-section is the total load capacity

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of the rod minus its own weight. Figure 1 shows the stress in the rod as a function of depth. Figure 2 gives the fluid load capacity with unit stress, rod size, and depth as variables. The permissible pump diameter can be determined from the relation:

$$d = 1.52\, d_1 \sqrt{\frac{S}{gL} - 2.97} \qquad (3)$$

where:

d = pump dia., inches.
d_1 = rod dia.
S = unit stress, pounds per square inches
L = depth feet
g = sp. g. fluid.

The selection of plunger size based on these simple relations assumes static conditions and uniform rod size. Static conditions are approximated

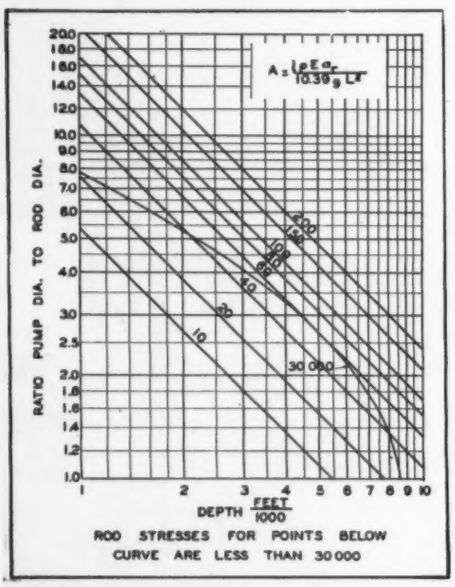


Fig. 3—Ratio of pump diameter to rod diameter for a given depth and length of stroke for maximum production

in slow pumping (under 10 strokes per minute) and uniform rod size is common practice in wells less than 5,000 feet in depth.

Rod Stretch and Pump Displacement.—Rod and tubing elongation are important factors in selection of pump size. It was pointed out by Sargent[9] that in deep wells it often is possible to increase production by reducing the pump size as the accompanying reduction in stretch gave a net stroke at the pump which more than compensated for the reduction in pump area. It can be shown mathematically that for uniform rod strings within the elastic limit of the material, maximum production will be obtained when the pump area is selected so that the stretch of the rod is one-half the polish rod stroke.

TABLE NO. 2—ROD DATA

Size:	Area	Upset and coup. wt./ft.	Load capacity — Unit stress — 15,000	20,000	30,000	40,000	50,000
⅝"	.3068	*1.13	4,160	6,140	9,200	12,270	15,340
¾"	.4418	*1.63	6,630	8,840	13,250	17,670	22,090
⅞"	.6013	*2.16	9,030	12,030	18,040	24,050	30,065
1"	.7854	*2.85	11,800	15,710	23,560	31,420	39,270
1⅛"	.9940	†3.70	14,900	19,880	29,820	39,760	49,700
1¼"	1.2272	†4.60	18,400	24,540	36,820	49,090	61,360
1½"	1.7671	†6.60	26,500	35,340	53,010	70,680	88,355

*30-foot lengths with upset and coupling. †Estimated. Sizes larger than 1" are not in regular production.

Pump area for maximum production (tubing free):

$$A = \frac{l_p \cdot E}{10.39\, g\, L^2 \left(\frac{1}{a_r} + \frac{1}{a_t}\right)} \qquad (4)$$

where:

A = Area of pump plunger, sq. in.
l_p = stroke at polished rod, inches.
E = Modulus of elasticity, 30,000,000#/sq. in.
a_r = area of rods, sq. in.
a_t = area of tubing, sq. in.
g = sp. gr. of fluid, (water at 60° F. = 1.00).
L = length of tubing, rods, and fluid level, ft.

Pump area for maximum production (tubing anchored):

$$A = \frac{l_p\, E\, a_r}{10.39\, gL^2} \qquad (5)$$

This brings out some significant facts. First, the plunger area for maximum production is directly proportional to the stroke at the polished rod and to the area of the sucker rod. Second, the plunger area for maximum production is inversely proportional to the square of the depth. It is not always possible to use areas as large as indicated by this relation without exceeding the permissible maximum rod stress. Figure 3 gives the ratio of pump diameter to rod diameter for maximum production for anchored tubing. The stress limitation for uniform rods indicates the necessity of tapered strings for deep wells.

Tapered Rod Strings.—The design of tapered rod strings involves the selection of a proper size rod for the pump diameter and depth to stay within the allowable stress. This size is used for the bottom section. Where the rod stress exceeds the allowable due to rod weight plus fluid load the next larger size is selected. Several changes in size may be required to keep the maximum stress within the proper limits. Kemler[10] has presented an excellent paper on the design of step tapered rod strings. For a continuously tapered rod string with equal stress throughout:

$$\frac{a_r}{a_{ro}} = \log_{10}{}^{-1}\ .4343\ \frac{(W)}{(S)}\ 12L \qquad (6)$$

where:

a_{ro} = rod area at the pump, sq. in.
a_r = rod area at any point L¹ distant from the pump, sq. in.
W = weight of rods, lb./cu. in. (in liquid).
S = allowable unit stress, lb./sq. in.
L = distance from pump, feet.

From (6) the rod diameter at any distance from the pump for a uniformly stressed tapered rod string can be determined. Figures 4 to 7 give this relation for ⅝-inch, ¾-inch, ⅞-inch, and 1-inch diameter rods at the pump and for the unit stress shown. These charts are based on static loading. To use charts 4 to 7 with acceleration correction use $\frac{S}{a}$ in place of S where a is acceleration factor from (10). However S should be used in computing the correct size at the lower end for carrying the fluid load. The pump size which can be carried by a given rod with water as the fluid and various unit stresses is given in Figure 8.

Since the unit stress is uniform throughout

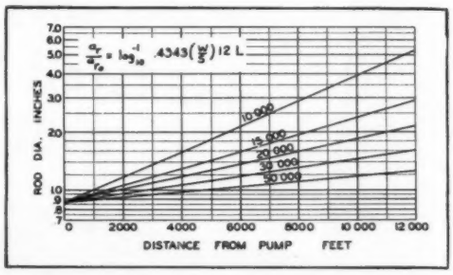


Fig. 6—Rod size for a given length and uniform stress starting with ⅞" diameter

the rod length when the fluid load is on tapered rod strings, the elongation can be determined from the following relation:

$$e = \frac{SL}{E} \qquad (7)$$

When the plunger is moving down, that is when the rod is suspended in the fluid, the elongation is:

$$e^1 = \frac{SL}{E} - \frac{S^2}{WE}\,(1 - e^{-WL/S}) \qquad (8)$$

Therefore, the change in elongation due to the fluid load is:

$$e_f = \frac{S^2}{WE}\,(1 - e^{-WL/S})$$

$$1 = l_p - e_f, \text{ and } S = \frac{.433\ g\ LA}{a_{ro}}$$

Since a_{ro} is chosen for each value of (A) to give the required S, the net stroke and hence the production per stroke will be proportional to $l_p - e_f$. Therefore, the production per stroke will increase with l_p and also as e_f is made smaller by designing the rod string for lower S.

Figure 9 gives the elongation of tapered rods under their own weight designed for the unit

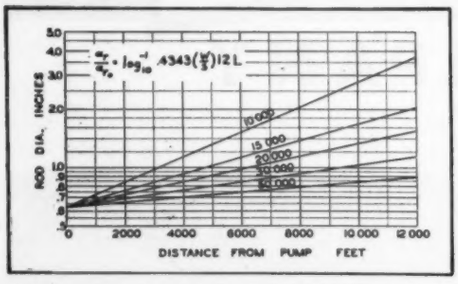


Fig. 4—Rod size for a given length and uniform stress starting with ⅝" diameter

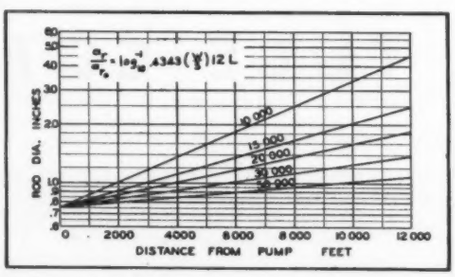


Fig. 5—Rod size for a given length and uniform stress starting with ¾" diameter

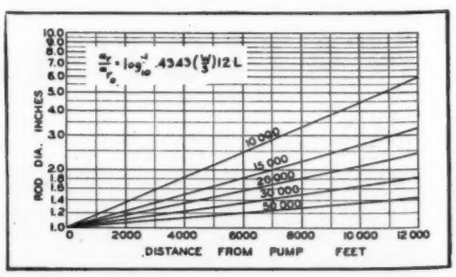


Fig. 7—Rod size for a given length and uniform stress starting with 1" diameter

stress shown. The elongation of a straight rod is also given for comparison. Figure 10 gives the elongation of tapered rod strings due to fluid load and total elongation due to fluid load plus rod load. From the curves for elongation due to fluid load the stroke efficiency for a given polish rod stroke can be computed. From Figure 10 it can readily be seen that with the slow motion pumping very long strokes are required to obtain reasonable stroke efficiency.

Dynamic Loading

Dynamic loading is a factor which must be considered when higher speeds are used. Since the mass to be accelerated is distributed over the full depth of the well, the rate of transmission of stress in both the rod and the fluid are factors which cause a lag and put the pump motion out of phase with the crank motion of the pumping unit. The amount of lag may be large in deep wells and at high speeds. The rate of stress transmission in steel is approximately 17,000 feet per second. If a well depth of 8,000 feet and a pumping speed of 20 strokes per minute are assumed, the time for the stress to reach bottom is .47 second. The time for the up-stroke of the pump is 1.5 seconds, therefore, the crank moves approximately one-sixth of a revolution or the polish rod moves up one-quarter of its stroke before the stress is transmitted to bottom. The maximum load due to acceleration is therefore delayed and reduced in magnitude below the theoretical load where the time of transmission of stress is neglected.

The acceleration of the fluid load involves other variables which cannot be estimated with any degree of accuracy. The rate of stress transmission in the fluid being lower than in steel (approximately 4,500 feet per second) the lag in the above example would be 1.8 seconds, which is more than one-half a revolution behind the crank. This lag is added to the rod lag and may put the fluid acceleration factor nearly a full revolution out of phase.

Another factor which lessens the importance of the acceleration of the fluid is the compressibility of the fluid[11]. The coefficient of compressibility of water is approximately 100 times that of steel and oil is 150 or more. A 6-foot stroke of a 1½-inch plunger at 8,000 feet discharging into a filled string of 2½-inch tubing could only increase the pressure in the system approximately 60 pounds per square inch, if the outlet at the surface were closed. This is a negligible amount compared with the normal static pressure of 3,000 pounds per square inch on the plunger at this depth. The acceleration of the fluid load therefore can be eliminated as a problem.

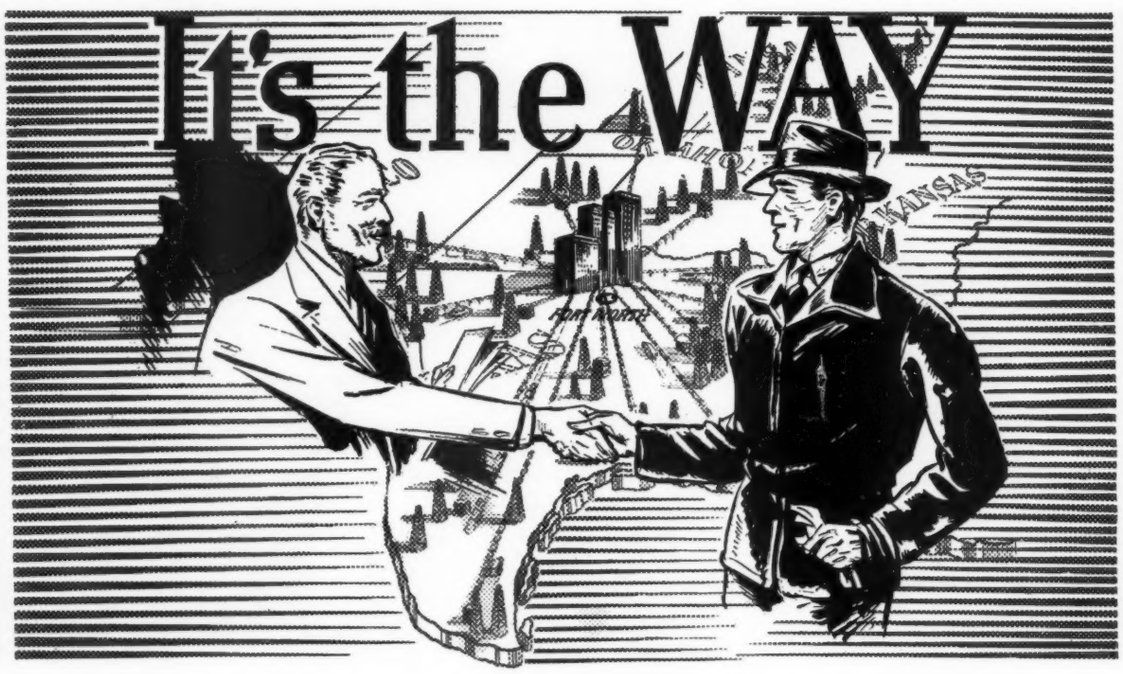
Therefore, the most important factor in the dynamic loading of the rod is the acceleration of the rod itself. Assuming simple harmonic motion this acceleration factor is:

$$a = \frac{1_p N^2}{2183} \text{ ft./sec./sec.} \qquad (9)$$

or in terms of the acceleration of gravity,

$$\frac{a}{g} = \frac{1_p N^2}{705} \text{ per cent} \qquad (10)$$

The crank angle of the pitman and variation in angular velocity of the crank may further in-



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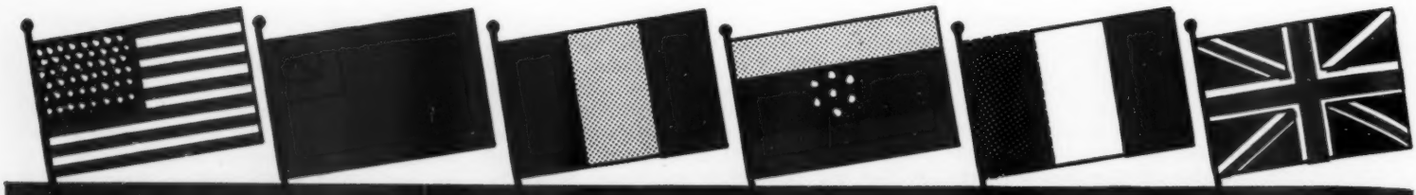

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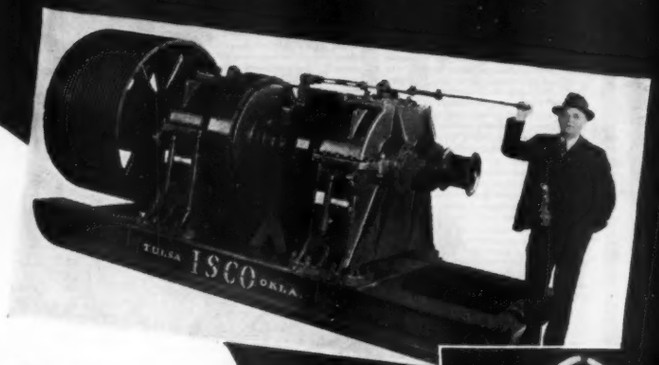

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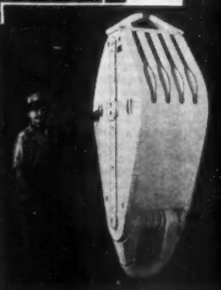

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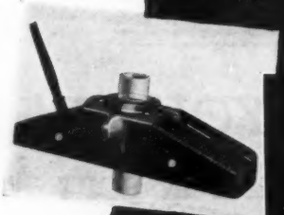

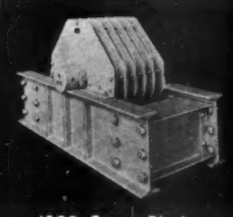

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crease this acceleration. The factors for pitman correction are:

Pitman length ÷ crank length

Factor:								
3.5	4	4.5	5	5.5	6	7	8	∞
1.286	1.250	1.222	1.200	1.182	1.167	1.143	1.125	1.000

For a 72-inch stroke and 20 strokes per minute the acceleration for harmonic motion would be

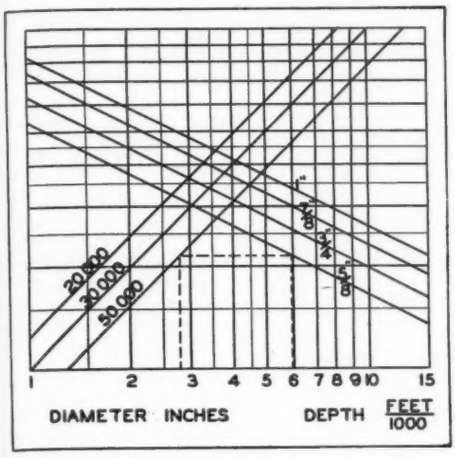

Fig. 8 — Pump diameter as a function of depth for various rod sizes and rod stresses

41 per cent above gravity and with a pitman-crank length ratio of 4 would be 51.5 per cent.

There are other variables which affect the total load on the rod such as friction and reflected stresses in the oscillating system. These are evident in some dynamometer cards but their magnitude cannot be predicted with any degree of certainty.

Figure 11 shows a typical polished rod dynagraph from a well equipped with a 1½-inch pump and a combination of ¾-inch and ⅞-inch tubing, operating at 16.7 strokes per minute. The rod load plus fluid load and the rod load are shown by the horizontal lines and represent the theoretical maximum and minimum loads. The variation in load as shown by the dynagraph is due to the dynamic loading, reflected stress and other factors referred to above.

Since in the rod pumping system the pump is single acting, the fluid load is alternately placed on the rod and the tubing. On the up stroke this load is not entirely taken by the rod until the polish rod has moved an amount equal to the elongation of the rods plus the tubing. This elongation is a large percentage of the polish rod stroke in deep wells. With static loading the dynamometer card at the polish rod therefore does not reach its maximum until late in the stroke and with the lag in dynamic load explained above the peak load may be close to the sum of these two loads. For estimating sucker rod loads it is reasonable to take the total maximum load as the fluid plus the rod weight in fluid plus the rod acceleration and assume that these loads are in phase.

Taking the acceleration of the rods into consideration then the permissible fluid load relation (2) may be modified as follows:

$$W = (S - 2.97\ L - 3.40\ L \frac{a}{g})\ a_r \qquad (11)$$

where $\frac{a}{g}$ is determined from (10).

Therefore, the ratio of pump diameter to rod diameter with harmonic acceleration:

$$\frac{d}{d_1} = 1.5 \sqrt{\frac{S}{gL} - 2.97 - .0048\ l_p N^2} \qquad (12)$$

where g = density of liquid.

From equation (1) when the stress due to rod load is equal to the maximum allowable stress no fluid load is permissible. From (1):

$$L = \frac{S}{2.97}$$

With acceleration and neglecting the lag due to velocity stress:

$$L = \frac{S}{2.97 \frac{a}{g}} \qquad (13)$$

where $\frac{a}{g}$ is acceleration factor from (10).

Figure 12 gives the maximum depth or the point where the fluid load is zero for various acceleration factors and rod stresses.

From this chart it is evident that rod strings to carry any reasonable percentage of "pay load"

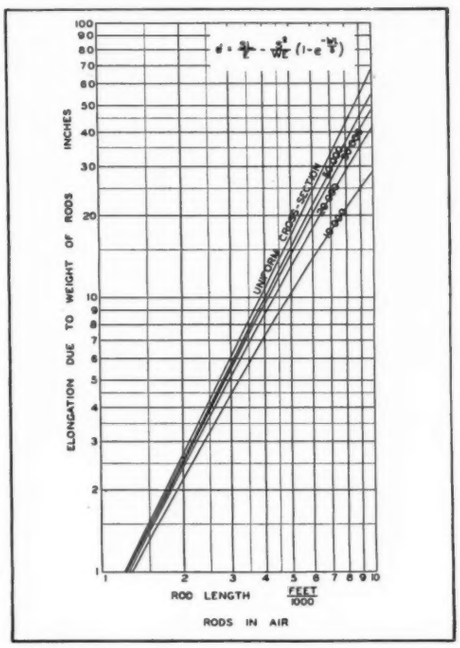

Fig. 9—Elongation of rods of uniform cross-section and of uniform stress under load, due to their own weight

in deep wells must either be tapered or made of steel of higher endurance limit.

Rod Strings of Uniform Cross-Section. — In using small diameter pumps in deep wells at relatively high speeds, it has been found that the travel of the pump plunger usually exceeded the computed stroke based upon subtracting the rod and tubing stretch from the polished rod stroke. This has been evidenced both by the plunger wear and the actual production obtained. Bottom-hole pressure readings have shown that this is not due to high fluid level and light loads. In fact many cases show a pump stroke greater than the polish rod stroke. Marsh[12] has shown that this overtravel can be determined from the relation of a slow motion dynamometer card to the normal speed card under the same well conditions. In a discussion of the Marsh paper the author suggested a theoretical method of approximating the plunger overtravel by the relation:

$$F = 1 + \frac{1.93\ (LN)^2}{10^5} \qquad (14)$$

where:

F = correction factor to polished rod stroke before deducting rod and tubing stretch.

L = length of rods in $\frac{\text{feet}}{1000}$

N = number of strokes per minute.

This relation assumes harmonic motion and uniform rod diameter. Gilbert[13] has shown that bottom-hole dynagraphs give strokes in excess of those derived from this relation. In suggesting this means of estimating overtravel, it was considered that there were so many indeterminent variables that a more involved relation was not warranted. However, it might be in order to apply a pitman-crank length ratio acceleration factor. The factor given in the first column can be applied. With a ratio of four the relation becomes:

$$F = 1 + \frac{2.4\ (LN)^2}{10^5} \qquad (15)$$

In some cases this will check more closely with Gilbert's results.

To apply overtravel correction to the area relation (4), the factor (F) can be used as a direct multiplying factor, which is the same as using (4) and substituting for l_p the polished rod stroke corrected for overtravel.

Since $1 = \frac{l_p}{2}$, the stroke efficiency is only 50 per cent with the pump area which gives maximum production. Smaller areas should therefore be selected for good performance and (4) corrected for overtravel should be taken as the maximum area which should never be exceeded.

Tapered Strings.—Elongation of tapered strings due to gravity can be determined from (8) or from Figure 9. Elongation of tapered strings while pumping is proportional to the acceleration. Since harmonic acceleration adds to the bottom of the stroke and also to the top, the change in elongation will be the sum of these elongations. Since for harmonic motion they are equal,

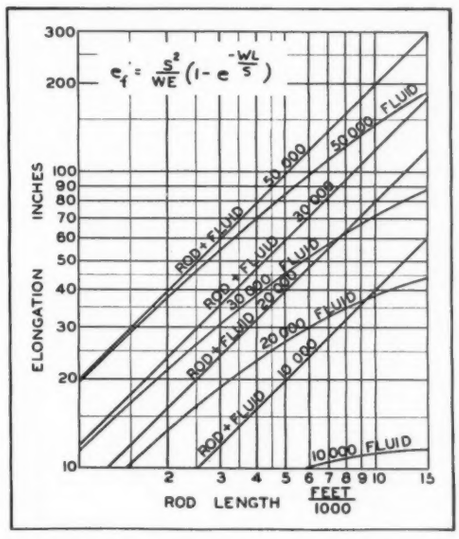
ELONGATION INCHES
ROD LENGTH FEET 1000
ROD + FLUID 50,000 FLUID
ROD + FLUID 30,000 FLUID
ROD + FLUID 20,000 FLUID
ROD + FLUID 10,000 FLUID

Fig. 10—Elongation of rods of uniform stress under load due to the fluid load and due to the rod load plus the fluid load

the total change will be twice the elongation at one end of the stroke. Therefore, the elongation due to acceleration is equal to the elongation determined from (8) multiplied by:

$$Fe = l_p \frac{LN^2}{352.5} \qquad (16)$$

Note: This is $2 \times \frac{a}{g}$ from (10). The pitman factor can also be applied.

The maximum pump capacity, that is, displacement, depends on the maximum fluid load which a given rod string will carry and the rate of plunger travel. It has been shown by (2) that the capacity of pumps actuated at slow speed

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with a rod string of uniform size drops off rapidly with depth. Figure 2 shows the relation of fluid load capacity to depth for this condition with the stress rod lengths and rod sizes shown.

Plunger speed varies from 1 stroke per minute or less for small wells to as much as 40 strokes per minute with a 54-inch stroke for other wells. Rod life is low under this latter condition, particularly with the heavy dynamic load caused

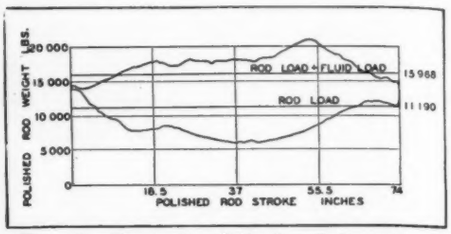


Fig. 11—Typical polished rod dynagraph

by this speed and the heavy fluid loads carried to obtain maximum production. This latter speed at the present time is used only for taking potentials. Forty 54-inch strokes per minute at 5,000 feet would give an overtravel of 96 per cent or a corrected polish rod stroke of 106 inches. If a

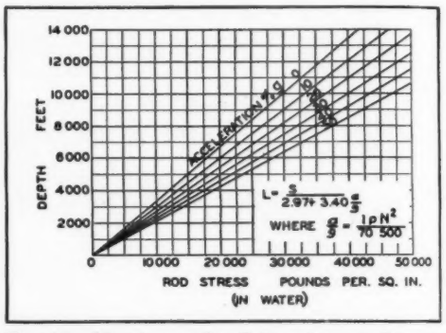


Fig. 12—Maximum depth for given rod stress and various acceleration factors

pump plunger for maximum production is selected the pump stroke would be 53 inches. Assuming ¾-inch rods the pump diameter for maximum production with anchored tubing would be 2⅝

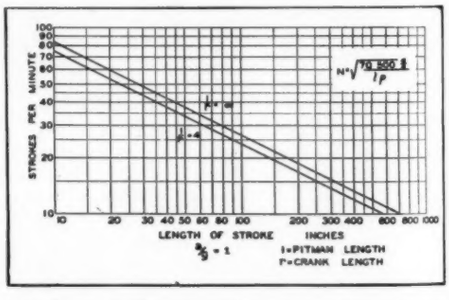
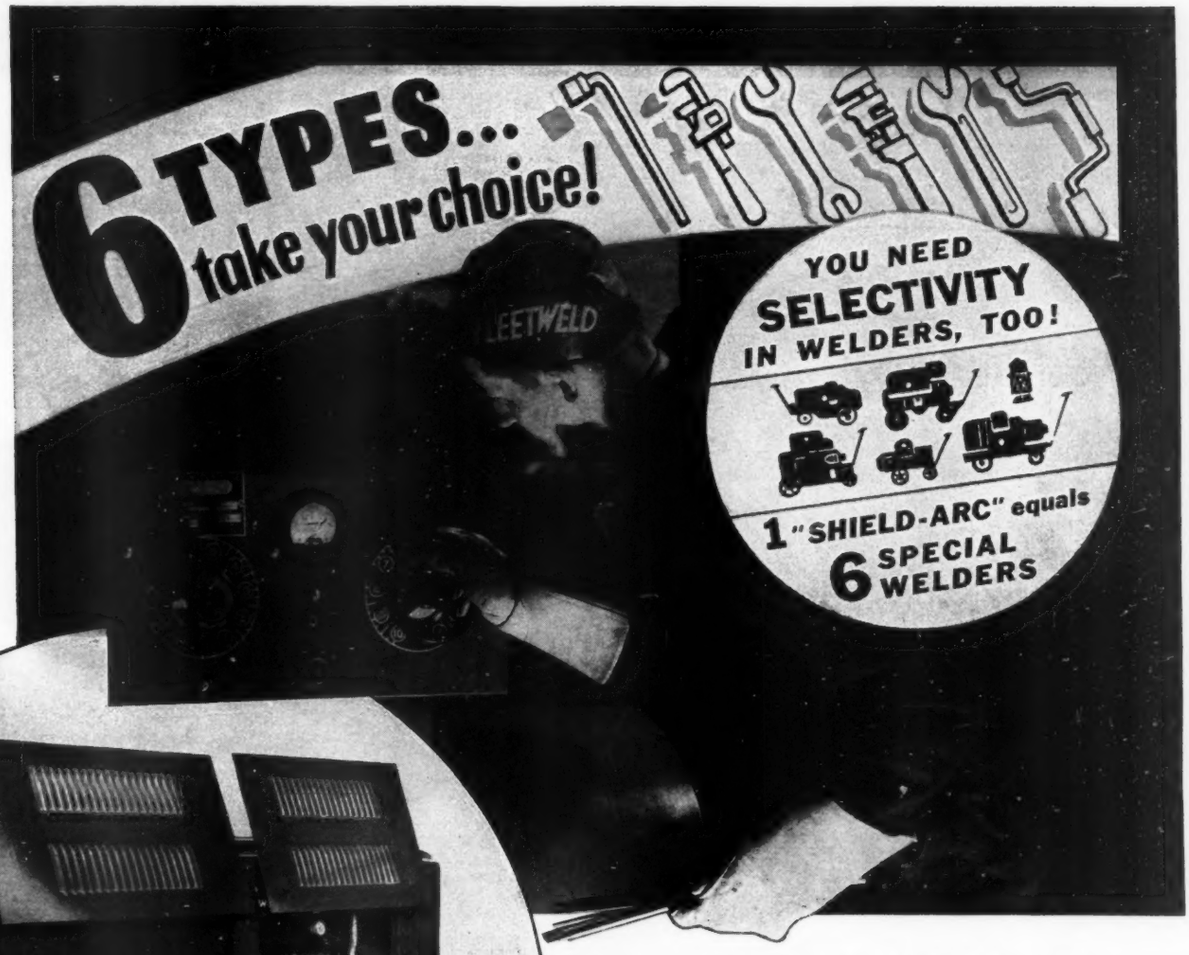


Fig. 13—Strokes per minute as a function of polished rod stroke to give an acceleration equal to gravity

inches. The fluid load with water would be 11,700 pounds. The rod load would be 8,300 pounds and the acceleration would be 12,800 pounds. The total load would be 32,800 pounds or a stress in the rods of 75,000 pounds per square inch. This exceeds the endurance limit for the highest grade steels and will not give satisfactory life. The maximum fluid capacity at 100 per cent volumetric efficiency is 1,700 bbls. per day. At 25 strokes per minute which is a more reasonable speed, corrected stroke equal 74 inches, pump plunger equals 2¼ inches and the fluid load would be 8,600 pounds. The rod load would still be 8,300 pounds and the acceleration would be 4,400

(Continued on Page 136)



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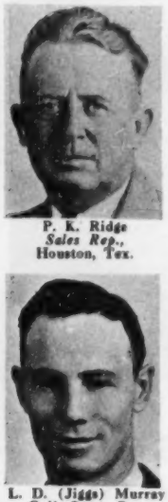

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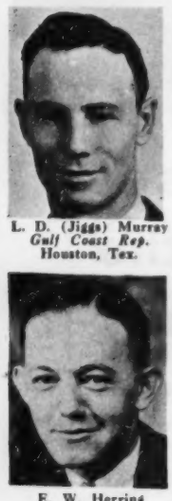

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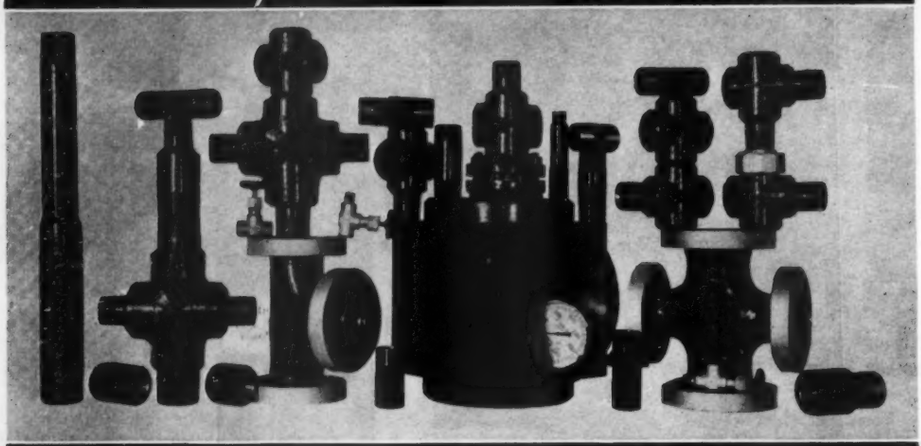

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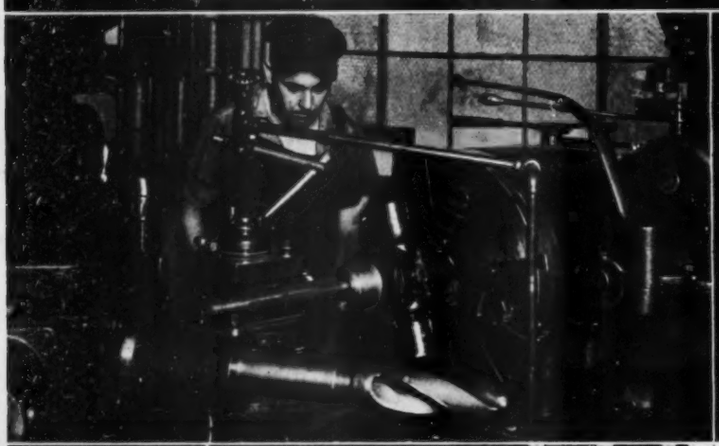

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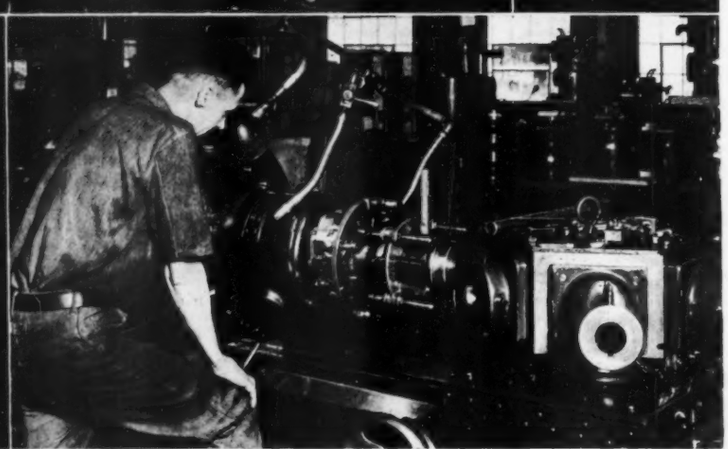

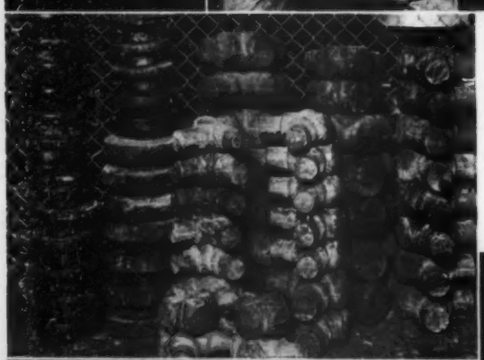

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pounds. The total load would be 21,300 pounds or a stress in the rods of 48,500 pounds per square inch. The maximum fluid capacity at 100 per cent volumetric efficiency is 535 bbls. per day. It should be noted that the acceleration at 40 strokes per minute is greater than gravity and hence at the start of the down stroke the rod hanger will leave the beam. This is the upper limit of pump speed and should not be closely approached for

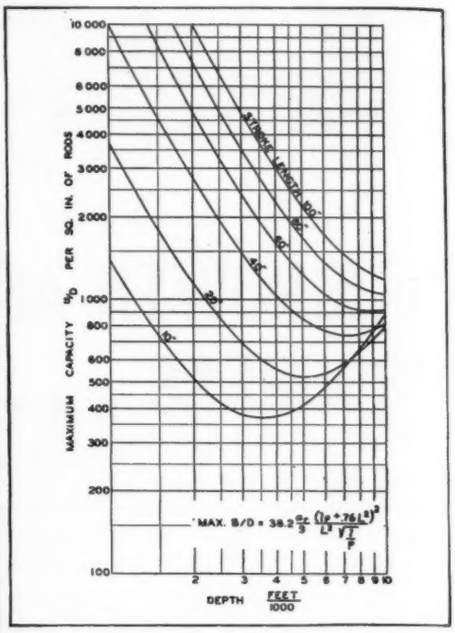

Fig. 14. — Maximum pump capacity as a function of depth with uniform rod diameter, and optimum conditions of speed and pump diameter

good performance. Figure 13 gives maximum strokes per minute as a function of polished rod stroke. Speeds of 50 to 75 per cent of these values are considered good practice.

It can be shown from (10) with a pitman crank ratio of four that the acceleration is equal to gravity when:

$$N = 237 \sqrt{\frac{1}{l_p}} \qquad (17)$$

At 75 per cent of maximum speed, therefore,

$$N_{75} = 178 \sqrt{\frac{1}{l_p}}$$

The useful polished rod travel per minute (single acting):

$$= N_{75} \times l_p = 178\sqrt{l_p}$$

Using this polished rod travel corrected for overtravel and the pump area for maximum production, it can be shown that the maximum possible production under these optimum conditions is:

Maximum production, barrels per day =

$$38.2 \frac{a_r}{g} \frac{(l_p + .76L^2)^2}{L^2\sqrt{l_p}} \qquad (18)$$

To summarize the results of the above analysis: Figure 14 gives the maximum pump capacity as a function of depth with speeds 75 per cent of maximum and pump sizes which give maximum production for each stroke length. It should be noted that the rod stress is excessive for present rod materials in part of the range covered. This series of curves shows the importance of overtravel when the crank speed is kept at 75 per cent of that for an acceleration equal to gravity. A 10-inch stroke at 56 strokes per minute will give the same displacement at 12,000 feet as a

100-inch stroke running 18 strokes per minute. The rod stress in the first case is 86,200 pounds per square inch and in the second case is 76,200 pounds per square inch.

To show the possibility of handling large volumes of fluid from deep wells and the resulting total rod loads, the chart in Figure 15 has been drawn for rod strings designed for uniform stress. The conditions assumed are as follows:

Rod stress, lbs. per sq. in.	30,000
Volumetric efficiency, per cent	80
Sp. gravity of fluid	1.0
Pump speed (75% of maximum) S.P.M.	16
Polish rod stroke, in.	120
Pump stroke, in.	90

The curves are only approximate as the pump stroke was assumed 90 inches in all cases. Computations for stretch and overtravel give a net stroke of 100 inches at 10,000 feet and 91 inches at 5,000 feet. In each case the rod string is full tapered and for small production is smaller than any of the available sizes. This curve shows the minimum possible load for the production shown.

Maximum Horsepower of Rod String

Uniform Cross-Section.—The maximum horsepower which can be transmitted by oscillating a rod string without exceeding the endurance limit is a point of interest in comparing rod pumping with other methods. If it is assumed that the pump is operated at optimum speed and that it has the optimum area then:

$$\text{Hp.} = \frac{(S_e - 4880L)a_r}{2220\sqrt{l_p}}\left[l_p - (S_e - 4880L)\frac{12{,}000L}{E} + .76L^2\right] \quad (19)$$

where:
S_e = Endurance limit, lbs. per sq. in.
L = Rod length, $\frac{\text{feet}}{1000}$
l_p = Polished rod stroke, inches.
E = Modulus of elasticity, lbs. per sq. in.
a_r = Area of rods, sq. in.
Note: Acceleration = 56% of gravity. S.P.M. = 75% of maximum.

Uniform Stress:

$$\text{Hp.} = \frac{S_e\, a_r}{2220\sqrt{l_p}}\left[l_p - \frac{S_e^2}{.247E}\left(1 - e^{\frac{-2880L}{S_e}}\right) + \left(\frac{24000S_eL}{E} - \frac{S_e^2}{.0795E}\left(1 - e^{\frac{-2910L}{S_e}}\right)\right)\right] \quad (20)$$

where:
e = Napierian base.
a_r = area of rods at pump, sq. in.

Relations (19) and (20) become identical when $L = 0$. If the rod stretch and overtravel are neglected it can be seen that the horsepower varies directly with the factors endurance limit (S_e), rod area (a_r), and as the square root of the polished rod stroke.

With a maximum stress of 30,000 pounds per square inch, a stroke length of 100 inches and a rod area of 1 square inch, the horsepower at zero depth is 135. At 5,000 feet, other conditions remaining the same, the horsepower transmitted by a rod of uniform cross-section is 29 and by a rod of uniform stress is 96. At 6,200 feet the horsepower transmitted by a rod of uniform cross-section is 0 and by one of uniform stress is 94. Therefore, it can be concluded that for depths over 5,000 feet tapered rod strings must be used to deliver sufficient horsepower for pumping requirements if the total rod stress is not allowed to exceed 30,000 pounds per square inch.

Conclusions

From the above analysis of sucker rod performance the following conclusions can be drawn:

1. Rods designed for uniform stress are capable of carrying heavy fluid loads.

2. Ninety-five horsepower per square inch of rod (at the pump) can be transmitted by a tapered string with a stress of 30,000 pounds per square inch, a stroke length of 100 inches and at an $N^2 l_p$ which gives an acceleration of 56 per cent of gravity.

3. Rods of uniform cross-section will not carry heavy fluid loads in deep wells. For each stress assumed a depth is reached where the fluid load becomes zero. These depths are within the range desired to pump.

4. With rods of uniform cross-section and static loading (slow motion) the pump size that gives maximum production varies directly with the rod area and polished rod stroke and inversely as the square of the depth.

5. Rod stretch may equal polished rod stroke and give zero production at a certain depth for each size of pump.

6. Dynamic loading increases the pump stroke at the expense of increased rod load and may give an overtravel equal to or greater than the stretch.

Other Problems

Corrosive Water.—In pumping oil wells the requirement usually encountered is to pump all the fluid that enters the well. This involves handling corrosive waters as well as oil, and oil containing a large amount of free gas, either as gas bubbles in the oil or as a froth. To produce all the oil the well is capable of producing the pump displacement must exceed the capacity by the amount of free gas. The pump then acts as a compressor and pump combined. If the bottom-hole pressure is low, which is the case when the maximum production is obtained, the plunger will pound the fluid hard which introduces indeterminent stresses in excess of the normal stress. Gilbert[13] has shown the effect of gas on pump load as determined by the bottom-hole dynagraph. In some wells the entrance of oil is variable and the pump displacement must exceed the maximum rate of entrance in order to insure the full production. The flexibility of most pumping units does not permit matching the pump displacement to the well capacity accurately. In small wells the pump is often run at several times the correct displacement.

Gas Separation.—This is a problem which is common to all types of pumps which are positive displacement or of the centrifugal type. Gas separators used are based on gravity separation of the gas bubbles. The anchor is located either below the pump or as an annular chamber around the pump shell. Fluid velocities of 6 inches per second, or less are used to permit the separation of gas bubbles. Gas is one of the important limiting factors on deep well pumps and improvements in gas anchor design are necessary to obtain satisfactory capacity and efficiency under some of the well conditions encountered. It is beyond the scope of this paper to discuss the gas separation problem in any detail.

Sand.—In most deep production the formation is well consolidated and sand does not present a serious problem. There are some exceptions, however, and when sand is produced with light oils and at the high bottom-hole temperature of deep wells the carrying capacity of the fluid is so reduced that sand is very troublesome. Sand troubles consist of both excessive wear and occasional sanding in and sticking of the pump assembly.

Viscosity.—As mentioned above, the bottom-hole temperature is usually quite high in deep wells. The temperature increase with depth averages about 1° F. for each 50 feet. Taking 60° F. as the mean surface temperature the bottom-hole temperature at 8,000 feet is 220° F. At this temperature oil viscosities usually encountered vary from 32 to 45 seconds, Saybolt Universal, or from 1 to 5 centipoise.

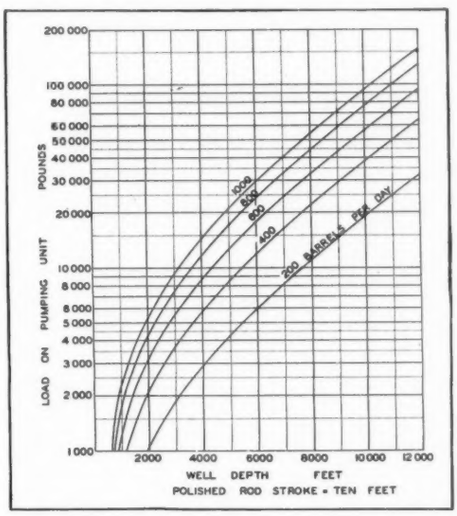

Fig. 15—Load on pumping unit under optimum conditions of speed, pump size, and rod design as a function of depth for the production rates shown

To hold slippage down to a reasonable percentage of the displacement plunger fits must be very close or very long. Field tests show the leakage to vary as the cube of plunger clearance[14]. Laboratory tests indicate the leakage to vary as $C^{3.3}$ where (C) is the plunger clearance.

Bottom-Hole Pumps.—The oil well pump is so well known that a description at this time would not serve any useful purpose. Recent improvements in pumps to meet the deep well pumping problems have been largely in the use of better materials and the development of special materials to better withstand both corrosion and wear.

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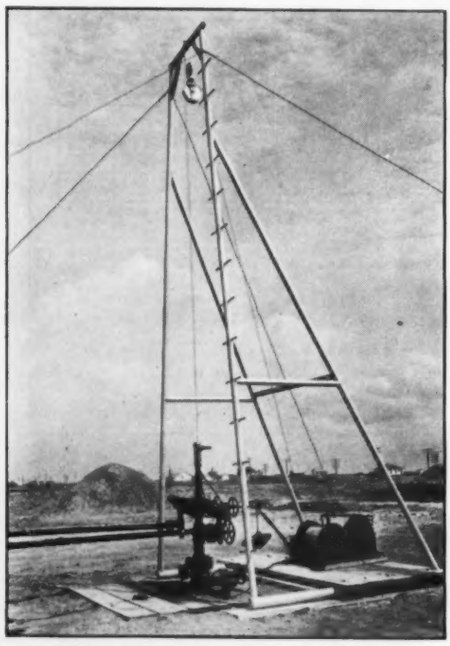
OPERATING IDEAS

Novel Paraffin Scraper

One of the major operators of the Corpus Christi field of Texas has installed on each of its wells a 30-foot mast with a reel driven by a gas turbine. This was necessitated by the heavy paraffin deposition. The paraffin



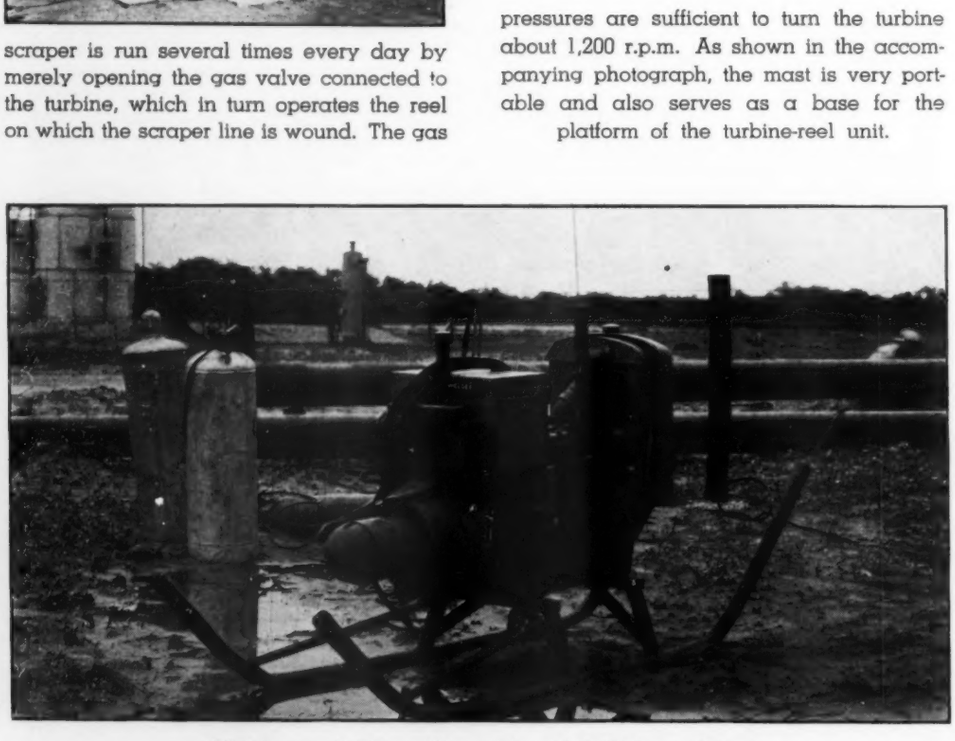
scraper is run several times every day by merely opening the gas valve connected to the turbine, which in turn operates the reel on which the scraper line is wound. The gas pressures are sufficient to turn the turbine about 1,200 r.p.m. As shown in the accompanying photograph, the mast is very portable and also serves as a base for the platform of the turbine-reel unit.

Automatic Sump Pump Holds Oil Level Constant

An electrically driven sump-pump has been installed at a pipe line station in Kansas to automatically hold the level of an underground tank constant. The power for the motor is turned on and off through a mercoid switch which is actuated by float arm in the tank. By use of this method the level of the oil in the sump is held practically constant at all times.

Barrel Used as Sludge Sampler

In the Flour Bluff field of Texas one large oil company makes use of an old oil drum to inspect the basic sediment as it is gravitated from the gun barrel settling tank to the burning pit. By using this drum the pumper is enabled to take samples of the basic sediment and thus eliminate the chance of wasting good oil that might be pumped into the waste vat. The barrel is equipped with an outlet leading to the pit where burning of the bottom sediment takes place.



Skid and Handles For Welding Unit

A large contracting company, handling various jobs in the oil fields, has found it economical and practicable to build a narrow skid for its 200-ampere welding unit in the form shown here. The frame permits four men to conveniently carry the unit through narrow places and its shape also permits the unit to be skidded from one location to another by mechanical power.

Fundamentals Involved in the Design of Cracking Furnaces

By J. H. RICKERMAN, W. E. LOBO and A. L. BAKER
M. W. Kellogg Co.

In the first half of this article, which appeared in the May 5 issue of The Oil and Gas Journal beginning on page 50, the authors discussed process design, arrangement of heating surfaces and heat distribution. In this second part of their paper, which was presented before the spring meeting of the American Society of Mechanical Engineers, March 23-25, Los Angeles, Calif., they describe the mechanical design of furnaces and their operation.

Furnace Tubes—Under the heading of the mechanical design of cracking furnaces and their details, one of the main items to be considered is the tubes and tube surface. The tendency of recent years is to the increased use of higher temperatures, and in many cases of higher pressures, with the result that great care must be given the choice of tube material, and its thickness in order to eliminate hazardous split tubes and destructive fires. For this reason tube stress calculations are as necessary as a study of the properties of the tube materials.

Tube Stress Design—Given certain operating conditions in terms of internal pressure and oil temperature, as well as the overall heat transfer and inside film coefficient, furnace tubes should

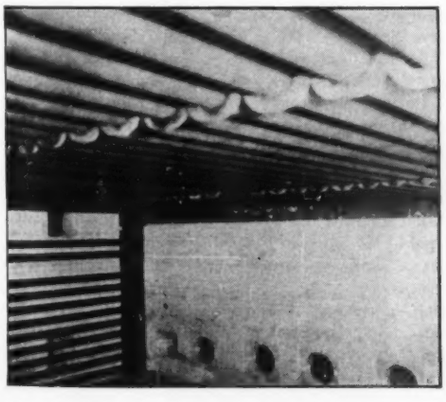


Fig. 12—Interior of a typical furnace with Detrick walls and arch

be calculated to assure a predetermined length of service.

In order that this may be properly done, the agencies operating to reduce the tube life must be known. Failure is usually the result of creep, the amount of which is dependent on the temperature, loading, and thickness of the tube.

Overheating of the tube may be due to insufficient temperature control, to hot spots caused by improper burner location, to an uneven rate along the length and around the circumference of the tube, to coke deposits on the inside which will raise the tube wall temperature, and lastly, to fires originating at the joint between the tube and header or at the cleanout.

Excessive pressures may be engendered by restriction of the tube area due to coke formation, and bending stresses may be produced by unforseen restraints or the sagging of tube supports. The agencies tending to reduce the wall section can be grouped under the headings of corrosion, oxidation and erosion.

Stresses in the tube wall are evaluated by formulae based on the derivations of R. W. Bailey.[6]

Shear stress at inner face of tube: $S_i = p \dfrac{b' \, k^{2b'}}{k^{2b'} - 1}$

Shear stress at outer face of tube: $S_o = p \dfrac{b'}{k^{2b'} - 1}$

Where, p = design pressure (lbs. per sq. in.)
k = ratio of O.D. to I.D. of tube

$$b' = b + \frac{QaD}{4c}$$

Q = rate (B.t.u. per sq. ft. out outside surface, per hour)
D = O.D. of tube (inches)
c = thermal conductivity of tube metal (B.t.u. per hour per sq. ft. per °F. per inch thickness)
a = metal constant dependent on creep properties
b = slope of log shear stress plotted against log creep rate.

This derivation of the stresses in a cylinder subject to internal pressure and heat transfer takes creep into account, and uses the Guest theory[7] as a criterion for combining stresses. In a later article[8] Mr. Bailey extends his theory to include three-dimensional creep. This later development has not yet been adapted to the practical problem of tube design.

In comparing the results of the formulae given above with stresses productive of definite amounts of creep obtained under test for various materials, it has been customary to use the stress causing 1 per cent creep in 10,000 hours as a limiting stress for furnace tubes. However, the deviations in service from ideal design conditions are taken into consideration by the introduction of correction factors. Uncertainties in the determination of the oil temperature from process considerations are usually compensated for by the addition of a temperature safety allowance. Uneven heat transfer over the tube surface is taken into account by multiplying the rates given for any furnace section by a heat density factor determined from thermocouple readings obtained from furnaces in operation. In many cases in order to allow for choking of the flow caused by coke, the calculated operating pressures are increased by an amount which is set by the type of operation involved. The coke, of course, if some may be expected, is also taken into account in calculating the tube wall temperature from the design oil temperature. Since data on the conductivity of coke are difficult to obtain under the conditions which prevail on the inside of the tube, the coke allowance is often expressed as a function of the heat transfer rate.

Corrosion is taken care of by adding extra thickness to the wall as a corrosion allowance. In a properly operated furnace the role played by oxidation is normally of no great significance, and accordingly this factor is not taken into account. Accelerated erosion effects are often noticeable at the ends of the tubes. They can be minimized by streamlining the header, by upsetting the tubes, or by the use of corrosion resistant liners or welded stubs.

Materials—Tube materials used in cracking processes include carbon steel, carbon-one-half per cent molybdenum steel, 2 per cent chrome-one-half per cent molybdenum steel and silimar analyses; and 4-6 per cent chrome-one-half per cent molybdenum steel and occassionally, 18 per cent Cr.-18 per cent nickel steel. At high operating pressures carbon steel tubes are limited to the lower temperature range of the furnace, alloy materials usually being required above 900° F. Allowable stresses for carbon-one-half per cent molybdenum steel, 2 per cent chrome-one-half per cent molybdenum and 4-6 per cent chrome-one-half per cent molybdenum steel are of the same order, and preference of one material should be based on corrosion resistance, which increases with the chrome content.

Most high temperature furnaces today are de-

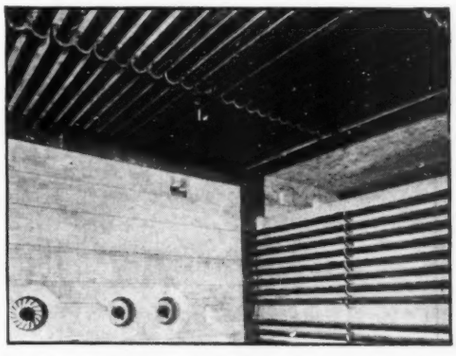


Fig. 13—Interior of typical furnace showing arrangement of tube banks

signed with varying tube materials throughout the furnace. The cheaper materials are used in zones of less drastic conditions, and the materials are tapered gradually until the more expensive, stronger tubes are used at the most vital points. High heat transfer rates may result in high tube metal temperatures so that again from this standpoint, it is necessary to avoid localized overheating in any section of tube surface. For control of furnace performance, including operation, the use of tube skin temperature thermocouples is being advocated. Vital points in the furnace may be used as control points for tubes of the various materials installed. These temperatures should be very closely watched in order to indicate rising tube metal temperatures due to the probable coking of the oil in the tubes. This coking may be due to either too

high a local heat density, or too high a crack per pass under the operating conditions obtaining.

Headers—Headers serve to connect tubes and to provide a means for cleaning out the latter. The primary requirement in a header is adequate mechanical strength combined with tightness of all joints. The flow should be carried through the header with the minimum pressure drop which will usually also give the minimum of corrosion, erosion and cavitation. The cleanout device should be easily accessible and so designed that it can be opened and reassembled in a minimum of time. The parts removed should not be too heavy or awkward to handle, but at the same time their construction should be sturdy. The joint seats should not be easily damaged, but if they are damaged, it should be possible to relap in the field at least the face of that part of the header which is permanently installed. The header may permit withdrawal of a bad tube without disturbing other tubes. Minimum tube centers are usually limited by the mechanical considerations of header design.

It will not always be possible to combine all the desired features in one design. It may be worth while to use under-size openings necessitating the sacrifice of an additional tube, when one tube fails, in the interest of obtaining a more positive closure and reducing the shutdown period for normal tube cleaning. The improvement in flow conditions offered by a streamline bend may, in certain designs, be overbalanced by the disadvantage of having heavier parts to handle during cleanout. Likewise, improved flow may be bought at the expense of large centers often with a corresponding increase in initial cost of the furnace.

Cast headers, as well as forged headers, are in extensive use in the industry, and the relative merits of either type have often been under discussion. There appears to be no doubt that the forging process itself is superior to the casting process and therefore, under severe conditions of temperature and pressure, the forged header is usually considered better. Of course, the forging has to be properly worked to insure absence of ingotism.

On the other hand, each new shape of casting requires the use of an individual technique suited to the particular pattern. The various provisions made to insure soundness tend to decrease the basic price advantage of castings over forgings. Cast headers made without the exercise of proper precautions are definitely unsatisfactory, and even where the work is closely controlled, it is to be expected that some flaws will be found. X-ray inspections of occasional castings have shown numerous defects which cannot be detected by other available methods of inspection. Of course, radiographic examination is possible only where the header is cut into sections, and consequently is not commercially practicable.

Claims advanced at times of increased creep resistance of cast material against forged or rolled material have not been substantiated, recent evidence proving that forged or rolled steel is equal or superior to cast steel. Similar statements are often put forward in connection with tensile properties, but upon analysis it is found that with equivalent carbon, manganese, etc., these is little difference if the materials compared have been subjected to the same heat treatment.

Brickwork—To perform its function as a reasonably tight combustion chamber the entire refactory furnace shell must be capable of withstanding disintegration or fusion, and must possess such thermal properties that a reasonable thickness will reduce the temperature at the outside face below the upper limit of the working range of commercially available insulations.

Gas temperatures in the ordinary cracking furnace are moderate, being considerably lower than in modern boiler service. Furthermore, most refineries use oil or gas as fuel, both of which rarely have slagging or fluxing action on the brickwork.

In recent years the length and width of combustion chambers have been extended to the limit of the tube lengths available and this increase in the extent of the walls creates a structural problem which has taxed the ingenuity of the designer.

Firebrick is an inelastic material lacking physical uniformity. Therefore, brickwork construction, which is, inherently a loose-knit structure, is only capable of uniformly transmitting stresses and forces when in compression. At operating temperatures the physical properties of the firebrick itself, and to even a greater extent of firebrick walls, vary over wide limits. Expansion coefficients which are available from various sources can be used only in conjunction with suitable safety factors, and data on shrinkage, coefficients, bearing capacity and softening temperatures are meager and often unreliable. The effect of temperature stresses is seldom considered and no doubt accounts for a part of the recorded variations in the physical properties.

Careful design and operation make it possible to secure entirely satisfactory service from suitably designed walls made of firebrick of ordinary quality. Ample provision must be made for vertical and horizontal expansion and for shrinkage. As the length of the wall increases, the importance of suitably spaced vertical expansion joints increases. As in any structure, the stability of the firebrick wall is proportional to its dimensional ratios. However, an additional item which must be considered is the factor of cyclic expansion and shrinkage.

The problem of arriving at a suitable thickness

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of firebrick and the amount of insulation to be used for a furnace wall involves a consideration of the economics of the cost of the wall balanced against the heat loss. The firebrick thickness, as previously stated, must be sufficient to reduce the temperature at its outer face within the range of the insulation used.

Firebrick walls in common use may be classified under three general headings, as follows: (1) Self-supporting walls. (2) Self-supporting walls stabilized with ties to steelwork. (3) Sectionally supported walls.

Self-supporting Walls

Self-supporting walls may be defined as that type of construction which secures its stability from the wall thickness alone. This design accentuates the inertia factor, resulting from alternate firing and shutting down, and the thickness required, particularly in the lower courses, results in a high temperature differential, which tends to separate the hot inside brick from the cooler rows outside and often results in a complete loss of stability. Expansion joints are only a partial remedy and of necessity weaken the wall by breaking the continuity of the bond. Since the brick and its bonding cement are unable to develop sufficient strength to maintain the continuity of the wall, numerous cracks result after a relatively few cycles.

To provide stability, the natural recourse is to tie the brickwork by some means to the steel framework. Retaining the self-supporting feature of design, occasional ties have been resorted to with some improvement. Development of this idea to a further degree leads to the desire of providing each brick with a tie. This is uneconomical for a standard size firebrick, and because of design complications, impractical for special size large tile, due to the flexibility required by the tile to accommodate itself freely to both lateral and vertical movements.

Sectionally supported walls are made of sectional panels, each supported and tied to the steelwork as an independent unit with vertical and horizontal expansion space provided between adjacent panels. The panel dimensions are relatively small so that the amount of expansion is correspondingly slight and is not cumulative. Superimposed loads are avoided since the weight of each panel is transported directly to the steelwork. Openings may be readily incorporated in this design, affecting only the panel in which they are installed. In this way, all of the fundamental deficiencies of ceramic material and inherent structural weakness of self-supporting walls are taken care of, reducing maintenance to a minimum. Further, this type of construction lends itself readily to replacement of damaged tiles which can be changed in any panel without disturbing the adjacent panels. The thickness of sectionally supported walls can be the minimum required from thermal considerations, eliminating the additional thickness required for self-supporting walls for stability and stress. A survey of sectionally supported walls indicates that this form of construction has proved entirely satisfactory in service. Figures 12 and 13 show typical supported walls now in use in cracking furnaces.

Three types of sheathing or weather proofing of furnace settings are commonly used: Red brick, transite, and sheet steel.

Red brick sheathing adds to the furnace bulk with a proportionate increase in the thermal inertia. Also due to the difference in temperature and expansion existing between the two materials, added complications occur in bonding the red brick to the firebrick lining. Maintenance of an air-tight setting with red brick is difficult and the added weight increases the foundation load. The overall cost per square foot is much higher than either transite or sheet steel sheathing.

Transite and steel sheathing may be considered together due to their similarity. Both result in practically an air-tight casing and may be fabricated to a neat fit around openings and changes in contour. Either type of sheathing can easily be made in removable panels, which may be required especially on walls adjacent to the convection section. Removable sheathing and sectionally supported walls provide easy access to any section.

Steel sheathing possesses the advantage of withstanding fires without cracking or disintegration and its flexibility under temperature readily compensates for expansion differentials between the steelwork and setting. If properly protected by paint for usual climatic conditions, steel sheathing will outlast the useful life of the furnace. Figure 14 shows a typical steel sheathed furnace.

The conventional type of flat suspended fire-tile arch has been found satisfactory for roofs. In some designs the tiles are hung from a loosely suspended member, and in case of the failure of an individual tile, the unbalanced load results in a serious distortion. For that reason a type should be selected which is not severely affected by the failure of a single tile, since the merits of flexible suspension are more than lost by this deficiency.

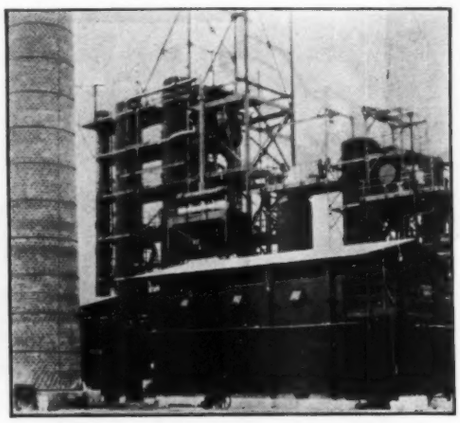

Fig. 14 — Conventional furnace showing steel sheathing

Castings—The principal use of metallic members within a furnace is to support the furnace tubes at intermediate points and at the ends. In addition, the end supports are essentially a part of the furnace shell, and all of these castings must be resistant to the temperature and gas exposure to which they are subjected. Generally these members are castings, although fabricated construction of rolled sheets and shapes are sometimes used for the end radiant wall and roof tube sheets. In such cases carbon steel is usually used and protected from the furnace gases by a tile facing. Where heat resisting materials are required, due to the shapes involved and analyses required, castings receive the preference.

It is apparent that gray cast iron has been used too extensively for furnace castings and is subject to serious and continued growth, which seems to be related to the corrosion resulting from its limited resistance to oxidation. In coarse-grained iron this growth apparently occurs at temperatures no higher than 700° F. It would appear to be a wise precaution to limit the use of commercial gray iron to locations where the metal temperature will not greatly exceed this figure.

Low chrome-nickel cast irons have been developed and used for the intermediate range of heat-resisting castings. These may be made in the cupola, resulting in castings which are fairly reasonable in price and which may be used for parts of the furnace which are not exposed to extreme temperatures. A great number of these cast irons such as Meehanite B and HB are in use.

For higher temperature service austenitic steel castings having a chrome content varying from approximately 22 to 28 per cent, and a nickel content of approximately 12 per cent have been found to be satisfactory. Alloy steels of this description have been used extensively for the past several years and have been found to give good service, where proper design stresses are used.

Steelwork—While the steel framework for furnaces is entirely on the outside of the refractory shell, it involves proper consideration as to fire hazard, particularly in the roof trusses where a failure of part of the arch may expose these members to the hot gases. At the same time, careful consideration must be given to connections between the framework, refractory shell and other members to insure ample allowance for expansion due to differences in temperature. The tubes may be supported directly from the foundation, but it is generally desirable to carry as much of this weight as possible directly or indirectly from the steel structure.

The importance of platforms is determined by the furnace service and where frequent cleaning of all tubes is anticipated, a system of platforms of approximately 7-foot vertical spacing should be provided. A width of 48 inches is generally satisfactory with a standard design having a regulation toe board, railing and checkered plate flooring. Access should be by means of stairways, with ladders on ends of platforms as a precaution in case of fire.

In general, a roof of No. 22 gauge corrugated galvanized steel is suitable for most climatic conditions. It is preferable that the tube hangers and arch tile supports be carried directly by the roof trusses, which, due to their depth, may be made with a small amount of deflection, using a minimum weight of steel.

Accessories—All heaters must be equipped with necessary accessories such as peep holes, explosion doors, access doors, etc. For the proper control of burners and combustion, a sufficient number of large peep holes should be provided to give a clear view of all burner flames. Peep holes should also permit the visual inspection of all tubes in the radiant section, as these tubes are the ones which are most likely to fail due to the more drastic conditions to which they are subjected. In the convection section where temperatures are milder, such peep holes are of little use. To facilitate maintenance work and repairs, access doors should be large enough to permit the passage of ladders and other equipment necessary.

Operation

Furnace control—In order to place all the furnace functions under automatic control, the following general equipment would be necessary:

1. Furnace charge flow control.
2. Automatic draft control.
3. Transfer line or tube temperature control of fuel to furnace.
4. Fuel-air ratio control.

These functions are listed in the order of their relative importance; and, in the average case, automatic control should be applied to any furnace design in this order, as the economic status of the furnace and the complexity of operation demand.

Fuel-air ratio control is only applicable on forced draft installations and supplements the other automatic controls in maintaining a constant ratio between the fuel fired and the combustion air supplied, so as to maintain constancy of CO_2 conditions, regardless of any other variables in the furnace operation.

In recent applications of fuel-air ratio control which have been made on oil heating furnaces, the fuel fed to the furnaces is metered, together

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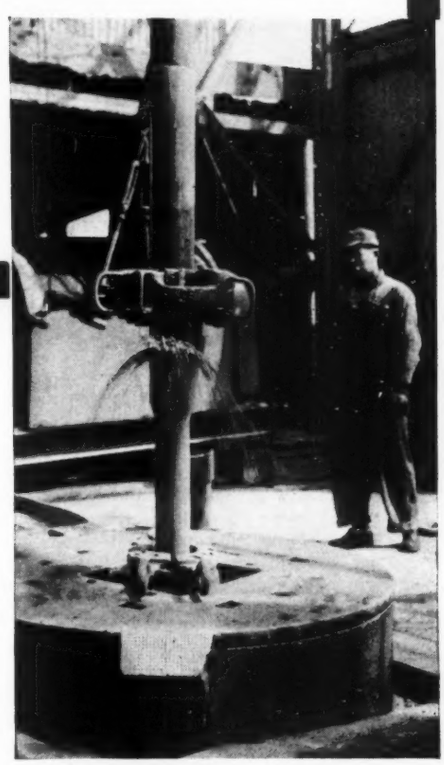

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with the forced-draft air supplied to the furnace. These values, usually measured as differential pressures, are balanced by the ratio controller in any desired ratio, so as to produce the required excess air condition in the furnace.

As the fuel feed is usually regulated by hand from the control-room, or automatically from the transfer line or tube temperature controller, it is usually best to vary the forced-draft air supplied

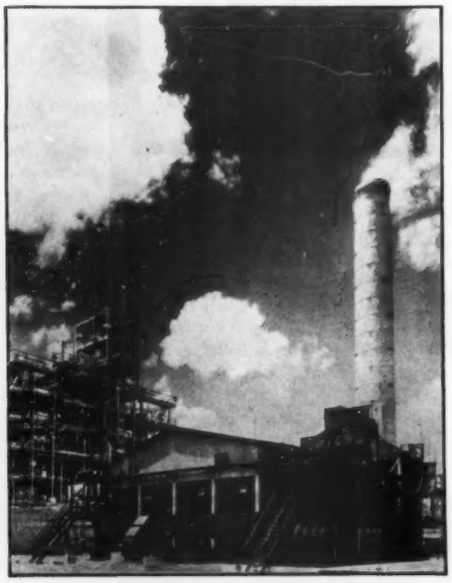

Fig. 15—Double radiant section polymerization furnace with external soaker

to the burners to maintain the proper ratio. This is done by making the controller operate the inlet vanes of the forced-draft fan, or in some cases a forced-draft fan discharge damper.

The principal advantage of such an installation is the maintenance of constant CO_2 in the flue gases at a predetermined point, so as to produce constantly the desired furnace efficiency.

The principal disadvantage of this type of equipment is the fact that the fuel gas supplied, particularly in a refinery, has often a fluctuating heating value. As it is extremely difficult and expensive to add a compensating feature to the fuel-air ratio controller, to compensate automatically for change in B.t.u. value of the fuel, the controller will not, normally, take care of this feature. Thus the CO_2, or excess air, even under fuel-air ratio control, will fluctuate with the heating value of the fuel in an undesirable way. In view of this latter fact, it is felt that fuel-air ratio control should only be applied to an oil heating furnace, where it is essential to control all elements entering into furnace operation, within narrow limits; and that, normally this equipment would not be necessary, and even in some cases, undesirable. To date, it is felt that the results secured from these installations have not justified the expense involved, from purely commercial considerations. However, experimental data have been secured which have permitted the designer to judge the merits of this equipment, as applied to oil heating furnaces.

Transfer line temperature control, as discussed in this report, refers to any type of instrument so placed in any section of a furnace heating coil that it will completely and automatically control the temperature of the fluid within the coil at that point regardless of the temperature level of the charge entering the coil or of any fluctuations which may take place in the charging rate. The control feature of the mechanism acts upon the furnace fuel supply and hence the heat input to the coil becomes a variable. The controller actuates the individual master fuel control valve for the coil being controlled. Temperature controllers are usually placed at the furnace outlet of a coil but where operating conditions dictate, or if the design of the furnace is such as to make that location impracticable, the instrument may be installed at any other desired point in the coil.

In certain installations the operating characteristics of temperature controllers have left much to be desired when acting alone. However, a constant or nearly constant temperature of the charging stock to a furnace is usually obtainable, since the charge is normally supplied from towers which are themselves temperature controlled. A flow controller acting alone, will, under these conditions, be found to be superior to a temperature controller acting alone both from an operating and economic standpoint and a satisfactory flow controller may be obtained at a price considerably less than the ordinary temperature controller. Hence, it is recommended that, when feasible, the problem be approached with the purpose of eliminating or lessening the effects of the variables of flow and temperature of the charging stock, rather than counteracting the effect of these variables, by a change in the rate of heat input to the coil within the furnace. When this is not found practical, or in large complicated units, the use of the automatic temperature controller is usually found to be an excellent solution.

A method of accurate tube skin temperature measurements which may be readily applied to the usual furnace tube either in the combustion space or at any other desired accessible point in the heating system has been developed recently.

In order to emphasize the purposes for which tube skin couples are installed, we tabulate them in the order of their importance:

1. To indicate rising tube temperatures approaching unsafe operating conditions due to coke deposition.

2. To indicate tube conditions with reference to anticipated time on steam.

3. To indicate heat distribution within the furnace, parallel and at right angles to, the long axis of the furnace tubes.

The couples may be used to prevent or anticipate splits and resultant damage due to furnace fires. In addition the fireman may use the readings to confirm proper burner adjustment. The superintendent will have available a progressive series of readings or recordings to indicate expected time on stream, and the maintenance superintendent can use the readings to indicate metal conditions after exposure to excess temperatures. In this connection, they are particularly valuable where austenitic tubes are used.

Valid objections to the use of properly designed and constructed skin type tube couples are few. Most operators are desirous of knowing as much as possible about what is taking place in their equipment. It is impossible for even an expert to tell from visual operation of furnace tubes under abnormal or even normal firing conditions exactly what the actual tube conditions are in regard to skin temperature. A change in fuel may create optical illusions tending to make all of the heating surface appear to be at the same temperature under certain conditions. It is also possible for reflections within the furnace to cause the tubes to appear red hot when actually they are not overheated. The only accurate method of obtaining skin temperatures is through the use of the tube skin thermocouple installations.

Figure 15 shows a typical cracking and oil processing furnace.

Summary

In summarizing, it might be pointed out that the trend is toward furnaces with higher radiant heat transfer rates, and higher oil velocities through the tubes. New designs are incorporating the principle of subjecting oil to vary high initial heat rates, and progressively decreasing these rates as the oil is cracked. Various methods are being used to accomplish this result, one of the most important being the use of separately fired radiant soaking sections. The importance of definite control of the oil heating curve as a means of eliminating coking in the heater, and obtaining the products desired is being realized more and more.

Proper thought must be given to burners and combustion in detail, in order to obtain the desired furnace efficiency, heat distribution and proper processing, as well as to eliminate all possibility of tube impingement and consequent tube rupture.

Materials should be used which will guarantee the life of the structure without maintenance for a longer period than formerly increased knowledge of metal properties and creep stress has made for safer tube and header design, both of which are necessary as higher oil temperatures and pressures are utilized.

The increased use of a method of tube cleaning which permits the elimination of the slow, old-fashioned method using tube cleaners, will probably lead to markedly different types of furnace design in the future.

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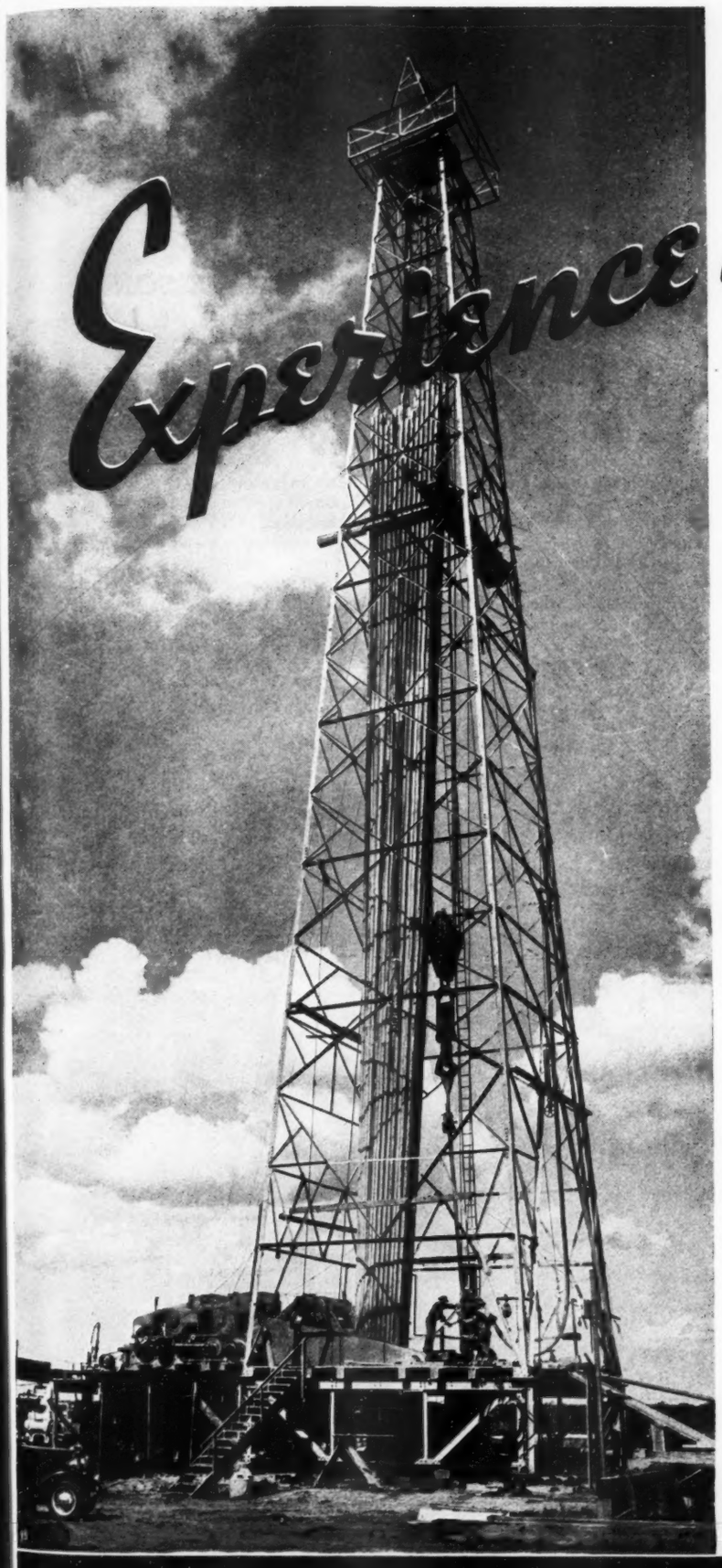
Typical Throat-Mix Refinery Burner

The most common type of burner used in oil refining processing is termed "throat mix," which means that the air and fuel are introduced in a throat of metal or tile just prior to release in the

furnace. Two examples of such burners were cited in the article presented by J. H. Rickerman, W. E. Lobo and A. L. Baker, starting on page 50 of the May 5 issue and continuing in this issue. The picture of one of these burners was not included, although reference was made to it as Figure 12. To complete the article this figure, as referred to on Page 53 of the May 5 issue, is shown here.



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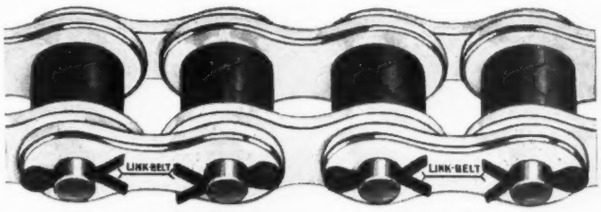

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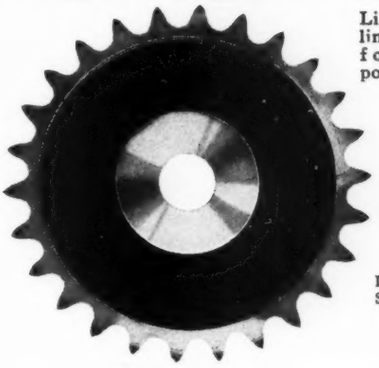
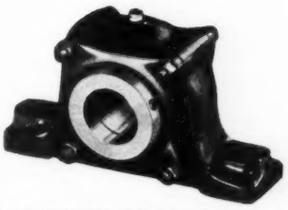


Link-Belt Cut Tooth Sprockets increase life of the chain.



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Inflammability of Oil Films on the Surface of Water

By W. L. NELSON

The hazard attendant upon the exposure of oil or oil films on the surface of water is an important consideration to refiners, particularly in the vicinity of loading docks or water outlets into harbors or rivers. The subject is also important to city or sewerage engineers because a large quantity of oil finds its way into the sewere systems of cities and the sewers usually drain into streams or harbors.

The experimental data presented in this paper indicate several important facts about oil films that are free to spread over the surface of water at prevailing atmospheric temperatures. For these conditions:

1. Only gasoline and some light naphthas will ignite or burn.

2. Tremendous quantities of gasoline are required to cover even a few acres of water.

3. Gasoline weathers rapidly when exposed in thin films and will not ignite after a short exposure.

4. Gasoline will not ignite other oils such as kerosene either when mixed with them or lying adjacent to them on the surface of the water.

The inflammability of a film is somewhat related to the flash-and-fire point of the oil but due to the conduction of heat from the film by means of the large volume of water that lies below the film, it appears that an oil film cannot be heated, even by means of an open flame, to a temperature much above the body temperature of the water. Thus, no oil can burn on the surface of water unless its fire-point is lower than the water temperature. However, if the oil is confined so that it lies as a thick layer on the surface of the water the above conclusions are no longer valid. In general, the above conclusions are substantiated by experimental work.

Experimental Results

Some of the properties of the materials used in the tests are given in Table 1, and the results of the tests are shown in Table 2. All of the tests were conducted at 75° F. and in a room free from air movement. In all cases the films were ignited by the application of an open flame such as a lighted match, or a burner flame. In tests 1 to 15, inclusive, the oils were spread over the entire surface of the water by means of a stirring rod. In these tests the films tended to crawl up the walls of the confining vessel and thus produce a slightly thicker film at the edges and a thinner film in the center. This may account in part for the longer burning times and greater inflammability that is evident in these tests. In all of the other tests, including even those on stone and brick, the oil was permitted to spread to its own natural thickness without touching a confining wall.

TABLE 1—PROPERTIES OF SAMPLES STUDIED

Sample designation	Kind of sample:	A.P.I. gravity	Other properties
A	Gasoline—Q grade	64	Fresh from storage
B	Gasoline—benzol	59.6	Vapor - pressure 4.9 lbs.
C	Kerosene	43.7	I.B.P. 352° F.—E.P. 505
D	Gasoline—low boiling	65.2	
E	Naphtha	52.7	I.B.P. 148° F.—E.P. 418
F	Crude oil (Cal.)	25.1	I.B.P. 131° F.
G	Gasoline—Ethyl	65	
H	Lubricating oil	25.1	Flash 452° F.—763 vis. at 100° F.
I	Asphalt		77 penetration at 77° F.

As oil is dropped on water, it tends to spread rapidly for a short time and then to maintain a nearly constant area without spreading much further. However, if the surface is exposed to a breeze or is agitated by currents or waves, the film continues to spread slowly until finally it disappears. Gasoline films assume a nearly constant thickness after a few seconds but viscous oils such as lubricating oils and some crude oils, spread very slowly. The thickest films that can be produced without confining walls are of the magnitude of 0.07 to 0.006 inch in thickness but the production of such films over any sizable area requires a large amount of oil. The following tabulation of film thicknesses taken from Table 1 and the computed volumes of oil required to cover .01 square mile of surface will serve to emphasize these points:

	Maximum thickness film, inches	Gallons required to cover .01 sq. mile
Gasoline A	.015	2,610
Gasoline B	.007	1,218
Gasoline-kerosene, 90%	.015	2,610
Gasoline-kerosene, 80%	.026	4,520
Crude oil F	.052	9,040
Lubricating oil H	.051	8,870

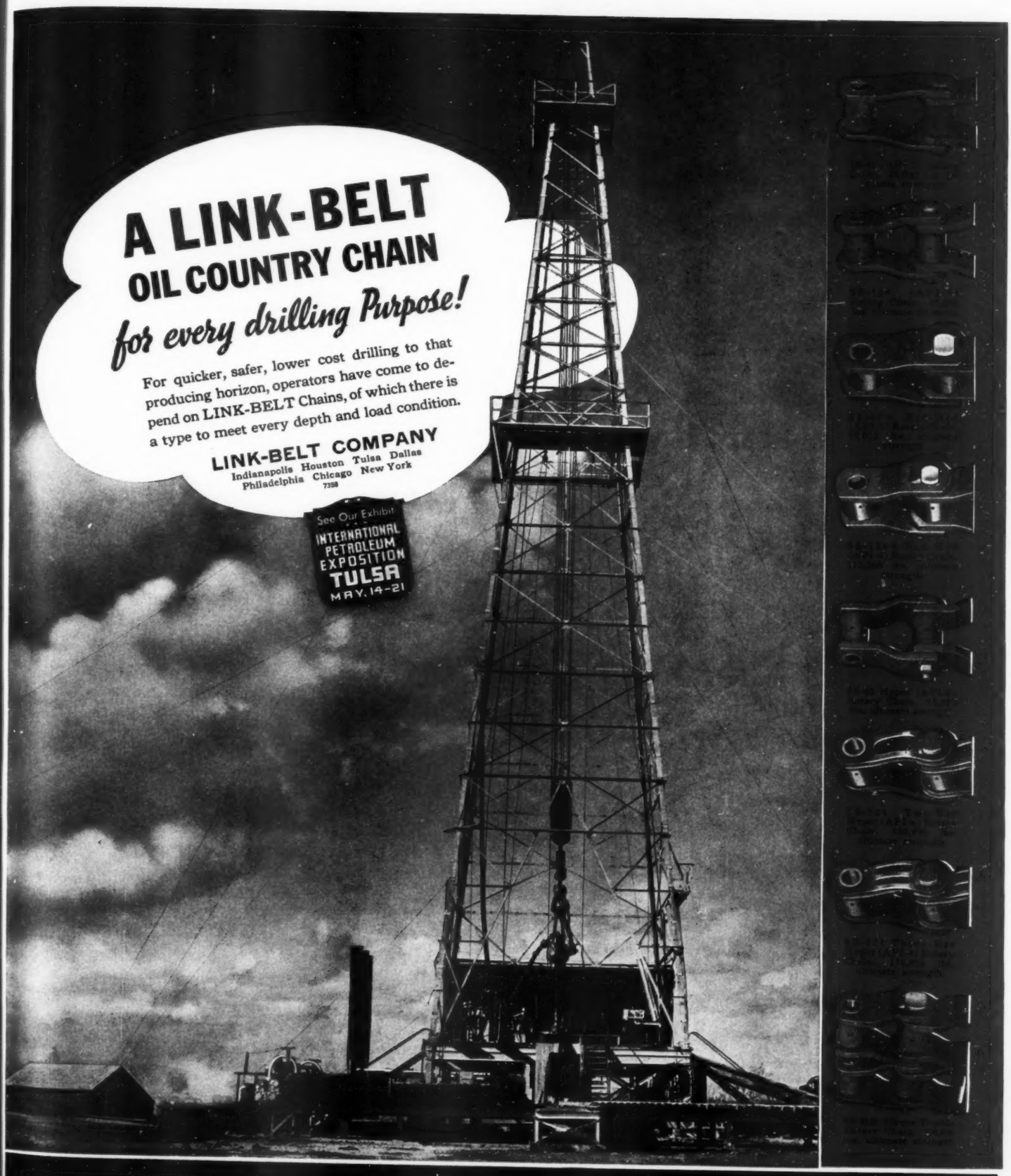
The minimum thickness of gasoline film that can be ignited without fail is about 0.0035 inch although in some instances a film of 0.0015 inch thickness can be made to flash if the flame is applied immediately after spreading the film.

The time that elapses before applying the flame to the surface is an important factor. In the case of the thickest gasoline film, the film would not ignite at all after an exposure of 25 to 36 minutes (Tests 9 and 16) whereas it would burn for several seconds if ignited prior to 25

TABLE 2—INFLAMMABILITY TESTS OF OIL FILMS*

Test No.	Sample: Name	Sample: No.	Film placed on	Film thickness, inches	Confined at edges	Time burned, seconds	Flash	Approx. weathering time, minutes	Approx. flame height, inches	Remarks:
1	Gasoline	A	Water	.0037	Yes	None	No	9	..	Spread over surface with rod.
2	Gasoline	A	Water	.0037	Yes	None	No	8	..	Spread over surface with rod.
3	Gasoline	A	Water	.0037	Yes	None	No	7	..	Spread over surface with rod.
4	Gasoline	A	Water	.0037	Yes	None	No	6	..	Spread over surface with rod.
5	Gasoline	A	Water	.0037	Yes	None	No	6	..	Spread over surface with rod.
6	Gasoline	A	Water	.015	Yes	55	..	9	13	Spread over surface with rod.
7	Gasoline	A	Water	.015	Yes	49	..	18	13	Spread over surface with rod.
8	Gasoline	A	Water	.015	Yes	None	Yes	36	..	Spread over surface with rod.
9	Gasoline	A	Water	.015	Yes	None	No	36	..	Spread over surface with rod.
11	Gasoline	A	Water	.0037	Yes	10	..	2	1	Spread over surface with rod.
12	Gasoline	A	Water	.0037	Yes	8	..	3	<1	Spread over surface with rod.
13	Gasoline	A	Water	.0037	Yes	1.5	..	3	..	Spread over surface with rod.
14	Gasoline	A	Water	.0037	Yes	10	..	3	<1	Spread over surface with rod.
15	Gasoline	A	Water	.0037	Yes	None	No	5	..	Spread over surface with rod.
16	Gasoline	A	Water	.015	No	None	No	25	..	....
17	Gasoline	B	Water	.0073	No	18.8	..	1½	3	....
18	Gasoline and kerosene	B&C	Water	.0073	No	10.7	..	1½	3	Equal quantities adjacent but not mixed.
19	Gasoline and kerosene	B&C	Water	.0073	No	16.0	..	1	3	Equal quantities but gasoline put on top of kerosene.
20	Gasoline	D	Water	.0065	No	20.7	..	1	1	....
21	Naphtha	E	Water	.0065	No	None	Yes	1	..	....
22	Crude oil	F	Water	.052	No	None	Yes	1	..	....
23	Gasoline and kerosene 90%	B&C	Water	.015	No	None	No	1	..	Mixture of 10% gasoline and 90% kerosene.
24	Gasoline and kerosene 80%	B&C	Water	.026	No	None	No	1	..	Mixture of 20% gasoline and 80% kerosene.
25	Gasoline	G	Water	.0092	No	15	..	1	..	....
26	Kerosene	C	Smooth stone	.017	No	None	No	1	..	....
27	Gasoline	B	Smooth stone	.0087	No	12	..	1	..	....
28	Gasoline and kerosene 80%	B&C	Smooth stone	.018	No	3	..	1	..	Could get flashes after flame burned out by applying matches.
29	Crude oil	F	Smooth stone	.038	No	2	..	1	..	....
30	Gasoline	B	Brick	....	No	77	..	1	1	....
30a	Gasoline and kerosene	B&C	Brick	....	No	78	..	1	1	Equal quantities—gasoline put on top of kerosene.
31	Gasoline	B	Smooth stone	....	No	16	..	1	..	....
32	Gasoline and kerosene	B&C	Smooth stone	....	No	12	..	1	..	Equal quantities—gasoline put on top of kerosene.
33	Lubricating oil	H	Water	.0508	No	None	No	0.2	..	....
34	Gasoline and lube	B&H	Water gasoline / Lube	.019 / .030	No	28	..	0.2	2½	Equal quantities—and gasoline held to small area by ring of lube oil.
35	Gasoline	B	Water	.0031	No	18	..	0.2	3+	....
36	Gasoline and asphalt	B&I	Water	....	No	..	..	0.4	..	Gasoline added repeatedly but asphalt did not catch fire.

*All tests at 75° F. and in a still atmosphere.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minutes. The same is true of the thinner films such as a thickness of 0.0037 inch which was studied in 10 or more tests. Such a film can be ignited up to about 3 minutes and may burn for as long as 10 seconds but if the time of weathering is 5 minutes or more, the material will not even flash. These results are summarized from Table 1:

INFLAMMABILITY OF MINIMUM GASOLINE FILM

Weathering time	Burning time	Material
0.2	18	B
2	10	A
3	10	A
3	1.5	A
3	8	A
5	zero	A
6-9	zero	A

In some tests the liquid level was nearer the top of the container than in others, and in these cases the weathering occurred more rapidly. These would indicate that if the film is exposed in some confined passageway, such as a sewer or in a deep pit, the rate of weathering might be much slower than is indicated by the tests given in Table 1. At the other extreme, it is obvious that a breeze above the water or any movement of the water, would tend to decrease the weathering time and possibly suppress inflammability entirely.

Mixtures of Gasoline and Heavier Oils

Gasoline does not assist other heavier oils to burn—and in fact the gasoline usually does not burn quite as well when mixed with other materials as it does when alone. This may be explained by noting that the heavy oil dilutes the gasoline causing a decreased tendency to vaporize and at the same time the heavier material is not heated to a temperature sufficiently high for combustion, even though it is in close proximity to the gasoline flame, because the large body of water upon which the oil film rests, is an effective medium for conducting heat away from the film.

These conclusions are evident in several of the tests listed in Table 1. The same amount of gasoline was used in each of the Tests 17, 18 and 19 but in addition an amount of kerosene equal to the amount of gasoline was used in Tests 18 and 19. Thus, twice as much total oil was used in Tests 18 and 19, as in Test 17. Yet one volume of gasoline burned for 18.8 seconds in Test 18 whereas the two volumes of oil used in Tests 18 and 19 burned only 10.7 and 16 seconds, respectively. Likewise, one volume of gasoline burned for 77 seconds in Test 30 and the same volume burned for 78 seconds in Test 30a when mixed with an equal volume of kerosene. The same general results were obtained in Tests 31 and 32. The dampening effect of a heavier oil on the burning qualities of gasoline is particularly evident in Tests 23 and 24. In these tests the gasoline was mixed with kerosene to the amount of 10 and 20 per cent, respectively, and the mixture would not flash nor burn.

The same general results were obtained whether the films were on water or on smooth stone. However, the effect of a rough or porous material such as the brick used in Tests 30 and 30a might give different results in several respects, particularly with regard to ease of ignition.

New Gas Cleaners Efficiently Remove Dirt and Liquids

A new development in the design of gas cleaners used to remove liquid or dirt particles from the gas stream has recently been announced. Principal features of the cleaners are greater simplicity, increased capacity, less pressure drop across the cleaner and more efficient removal of liquid and dirt particles. The new cleaner was designed and developed by the Fluor Corp., Ltd., principal features of which are shown in the accompanying cutaway diagrams.

Figure 1 illustrates the interior construction of the liquid remover type of cleaner. The liquid-laden gas stream enters at the top of the hemispherical, or semielliptical head, and is passed between the inner face of the head and the outside face of an inner hemispherical or semielliptical head, with a gradually decreasing velocity in the gas stream. The curved form of this annular space between the two curved surfaces tends to throw the liquid particles downward and outward, thus throwing the liquid particles to the inside surface of the curved head and the shell where the particles drain down the sides of the shell to the liquid storage space in the bottom of the cleaner. The area of this annular space is computed for a maximum velocity condition with due consideration being given to the specific gravity and temperature of the gas stream. At the bottom or opening of this annular space the gas stream reverses its flow 180 degrees and passes upward at a still greater reduced velocity to finally enter the enlarged outlet nozzle underneath the inner curved cone.

The annular space between the inner curved cone and the vertical portion of the outlet pipe is so proportioned that the velocity of the gas stream through this area is sufficiently below the entrainment velocity of the gas. Thus any liquid particles that may still exist in the gas stream at this point will drop out by gravity. When the gas reaches the enlarged opening of the outlet pipe it has been as completely stripped of entrained liquid particles as it is possible to do so by mechanical methods. It will be observed that the cleaner is entirely devoid of any baffles, screens, or surfaces designed to collect the liquid particles by impingement methods. Therefore, there are no impinged particles of liquid in the path of the gas stream to be carried out of the cleaner. Thus, it is also true that there are no obstructions presented which ordinarily cause appreciable pressure drop through a cleaner. Actual tests have indicated pressure drops for the new design ranging between 4 and 6 inches of water across the inlet and outlet nozzles of the cleaner. The perforated plate shown above the liquid storage space serves as a blanket for the surface of the collected liquid, which surface might become agitated in the event of any intermittent flow or surging action of the gas stream. The new cleaner is constructed with the usual drain outlet, inspection handhole, and gauge glass outlets. Any additional outlets can be provided if desired.

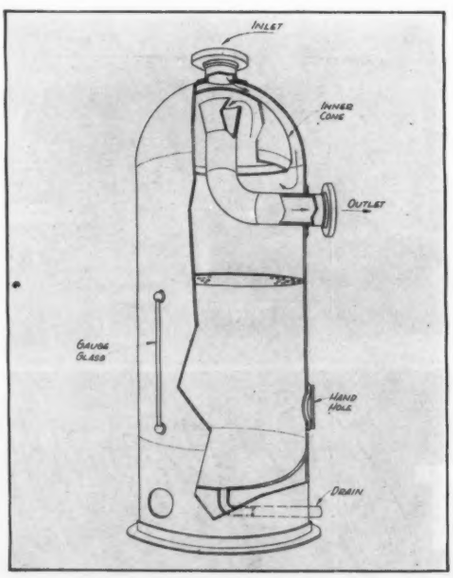


Fig. 1—Gas cleaner for removing liquids

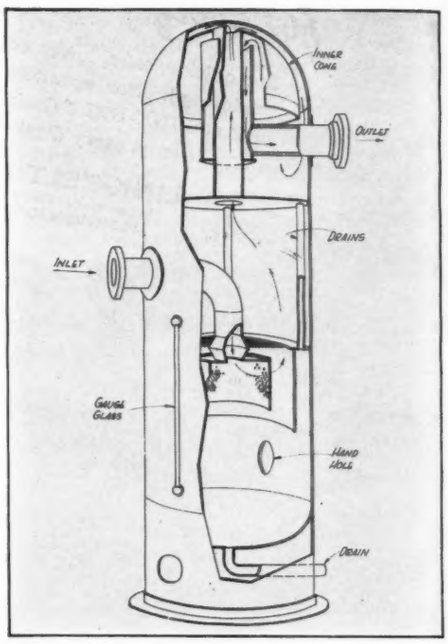
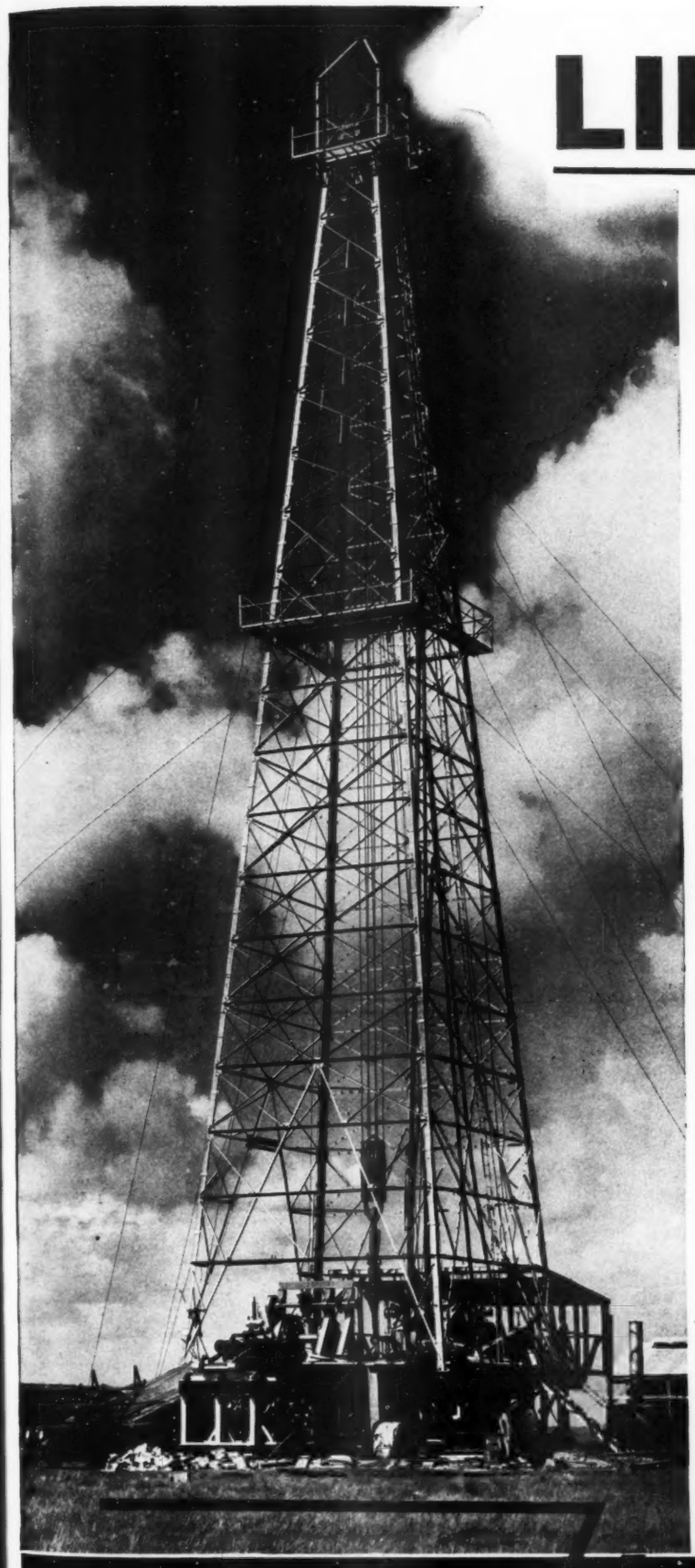


Fig. 2—Gas cleaner for removing dirt

If installation space is limited in head room for the vertical type of cleaner, a horizontal type cleaner has been designed along the same principles as the vertical type. This horizontal type of cleaner is particularly adapted for installations under ground or in manholes.

The dirt remover type of cleaner, as shown in Figure 2, is similar in design and operation to the cleaner described above except that the dirt-laden gas enters the cleaner through the side of the shell instead of the top head and is passed through an oil bath where gas and oil come into intimate contact. During this contact the dirt particles are precipitated in the oil bath and gradually settle to the bottom of the cleaner to accumulate as a sludge. This sludge can be periodically blown out through the drain or removed through the cleanout handhole as often as required. After the clean gas leaves the oil bath through a perforated screen, it passes up into the liquid removing element, previously described, where the liquid particles of entrained oil are removed and drained back by means of four drain pipes to the oil bath.

The cleaning process is continuous for both types of cleaners. On account of a slight differential in pressure, it is possible to add or change the oil in the dirt cleaner type by means of a small auxiliary fill tank without taking the cleaner out of service. The gas cleaners are fully protected by existing patents and patents pending.



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Improvements in Electric Welding of Gas Lines

By HAROLD C. PRICE
H. C. Price Co., Bartlesville, Okla.*

Ten years have passed since the field joints of gas transmission lines were first electric welded. During that period several thousand miles of gas transmission lines have been laid in this country. The use of electric welding on field joints increased rapidly until today it can be said that it is the only method of welding field joints that is being used, particularly on large diameter pipe.

The improvement in this electric welding has been gradual but this gradual improvement from year to year has accumulated until the finished weld today is a much improved product and much more efficiently made than that of 1928. To realize this we must first discuss the original method. Only bare electrodes were available. The gasoline driven welding machines had a capacity of no more than 300 amperes at 25 volts. The pipe used was either of the bell and spigot, or plain end type. There were no experienced electric pipe line welders. Even with this material, equipment and personnel successful lines were laid on small diameter pipe in the southern part of the country. However, the weld was very brittle and when an attempt was made to weld pipe 12 inches or over in country where there were decided changes of temperature, the result was not so good. On a 600-mile, 12-inch oil line from Oklahoma to Chicago 45 joints broke the first winter.

In 1930 the first improvement took place when the heavily coated or shielded arc electrode became available. With it came the double-bell joint with the backing up ring. From that date it can be said that the electric welding on gas lines began to make real progress. The improvements since that time can be subdivided under the headings of equipment, technique and personnel.

Equipment

Welding Machines — The introduction of the coated rod necessitated the use of higher currents. The smaller machines were replaced with those having a constant capacity of 400 amperes and a maximum of 500 amperes at 40 volts. Today, after several years experiment, we have been able to obtain diesel units which only weigh 300 pounds more than the gasoline driven and consume less than 50 per cent of the amount of fuel.

Electrodes—Instead of using rods of a diameter no greater than $\frac{1}{8}$-inch, we use coated rods as large as $\frac{5}{32}$-inch diameter. The coated rod which came out in 1930 was still in the experimental stage and, although it gave us a vastly improved weld in preference to the bare rod, it was still far from perfect as there were gas pockets in the weld which looked like worm holes and resulted in a considerable number of leaks on the lines on which it was used. The coated rod has been constantly improved by the manufacturers from year to year until now there is no difficulty in obtaining a homogeneous sound weld from which the leaks have practically been eliminated.

Backing-Up Rings—The first backing-up rings that were furnished with the pipe were of heavy construction with a wide spacing hump in the center. The main portion of the ring was ¼-inch thick with the spacing hump 9/32-inch wide. The ring itself was 3 inches in width. Today we use a ring 2 inches in width with a thickness of only 5/32-inch and a spacer of only $\frac{1}{8}$-inch. This small ring is particularly advantageous when plain end pipe is used as it is evident that it furnishes less obstruction, if any, to the flow of the gas.

Pipe Joints—Originally most of the lines were equipped with a double-bell joint. This was necessary considering the heavy construction of the ring, but now with a lighter ring many of the lines being constructed use only plain end pipe. At first it was thought that it was impossible to use the coated rod and electric weld without the use of the backing-up ring. In 1933 the first long line was welded without a backing-up ring. This was 200 miles of 8-inch gasoline line and it proved absolutely successful. Naturally, there has been reluctance by the gas companies to place backing-up rings inside of pipe under 12-inch diameter, i.e., unless the pipe was first double belled. The practice now on gas lines is to use a backing-up ring on lines of 10 inches or greater in diameter but to use plain end pipe without the backing-up ring on lines of smaller diameter. There are two reasons for using the backing-up ring where available: First, because it has proven to be the most foolproof weld that can be obtained. Second, because of the necessity of applying only two beads in completing the weld, it reduces the cost of welding. When the backing-up ring is eliminated, three beads must be applied.

Transportation—Until recently the welding machines were mounted on wagons and moved along the right of way by tractors or teams regardless of the nature of the country. Today this method of transportation is used only in rough or inaccessible country. In country where the going is good each machine is mounted on its own individual truck which naturally increases the speed of operation.

Technique

Tacking — The first specifications called for from four to six tack welds, each of them 2 inches in length on each joint. Today we only use the minimum number of tacks to keep the pipe aligned on the dollies. Each tack is about an inch in length and of no greater height than two-thirds the thickness of the pipe.

Spacing — As mentioned above, we originally used a space of about 9/32-inch between the ends of the pipe. Specifications called for a big wide weld. Results have shown us that this not only unnecessary but detrimental. Today we endeavor to obtain as narrow a weld as possible and at the same time be assured that it has thorough penetration and proper reinforcement.

Stove-Pipe Method for Solid Welded Lines—We now come to the most recent improvement in the method of welding solid welded gas or oil lines. The previously established method was to always line up and weld the pipe into 200-foot sections and then tie these sections into the completed line with a bell-hole or position weld. Under the stove-pipe method of construction, each joint is handled individually and welded onto the line one joint at a time. The lining up of pipe in long sections and the roll welding is eliminated. The stove-pipe method is particularly applicable in extremely rough or muddy country. It is also more economical on small diameter lines, i.e., 6 inches or less, in good or bad country. In extremely rough or muddy country only a limited amount of pipe can be laid per day by any method because of the difficulty in transporting equipment. With this limited progress in construction only a comparatively small number of welds are daily required. It is found that even though all of the welds are position welds, the same progress can be made by the addition of one or two welding machines, and at the same time eliminating the line up crew and their tractors. Stove-pipe welding is performed under the following procedure:

The right of way is cleared, pipe strung, and the ditch dug ahead of the welding operations. Each joint is lined up on skids across the ditch, and, as a subsequent joint is laid over the skids, two welders immediately tack same and apply the first bead completely around the pipe. The welders work on opposite sides of the pipe. Following the tackers come the main welding gang. These welders complete each weld by adding a sufficient number of additional beads by the usual tie-in method. Bending of the pipe is done either on single joints before they are placed over the ditch and tacked or after the first bead is welded.

Methods of Construction

Solid Welded vs. Welded and Coupled Lines—Whether the solid welded or the composite welded and coupled joint is the best for use on gas lines is still undecided. Certain companies prefer one method and certain companies the other, and the trend seems to be more or less geographical. The Pacific Coast has used only the solid welded method of construction. The Mid-Continent gas lines have been mostly of the composite type, and some of the eastern lines have been solid coupled. In 1936 one of the large eastern gas companies laid 93 miles of 12-inch through the roughest mountains of West Virginia, which was solid welded under the stove-pipe method. This line was built to stand a pressure of 1,400 pounds, and we understand that the result has been absolutely satisfactory. The California solid welded lines have been subjected to two natural disasters—an earthquake and a flood, and, from information obtained by the writer, withstood both of these with a minimum amount of trouble.

Credit for the greatest share of the improve-

*Paper presented at meeting of the Natural Gas Department of the American Gas Association, New Orleans, La., May 9-12, 1938.

ment in the electric welding of pipe lines must be given to the increased efficiency and experience of the welders themselves. Whereas, in 1928 and for a few years thereafter, we had to pick up welders at random and break them in as pipe line welders, we now have in our organization operators who have had many years' experience doing nothing but pipe line welding. Whether the line is laid east, west, north or south, you will find the same group of men doing the work. Practically all of these men are proud of their ability and extremely conscientous. We have found them the highest type of artisans and it has been a privilege to have been associated with them.

It is easy to summarize the results of the improvements noted above. There is no question about the strength of the shielded arc weld as compared with the old bare rod weld. A broken weld under the present method is practically unheard of. There was quite a bit of leakage in the first shielded arc welds. Today leakage has been practically eliminated. The speed of welding has been greatly increased with subsequent reduction in the cost of welding. For example, in 1930 our welders averaged only 1.45 rolling welds per hour on a 20-inch line and 1.28 rolling welds per hour on a 24-inch line using seven pounds of rod per weld. In 1937 the same man averaged 2.5 rolling welds per hour on a 22-inch line and used only four pounds of rod per weld.

In preparation of this paper it has been necessary for the writer to obtain the data and facts from the records and experience of our own organization which includes the electric welding of over 6,700 miles of oil and gas lines throughout the United States and covering the welding of 850,000 joints.

Manual on Service Station Merchandising Published

The first edition of "Manual of Service Station Merchandising and Management" has just been published by the National Association of Petroleum Retailers, Milwaukee, Wis. The manual contains scores of tested merchandising ideas, which have been developed and proved successful in the retail gasoline field. In presenting this manual it has been the attempt of the authors to keep the suggestions practical and to only use those plans and methods which actually have been tested in the field.

The makeup of the book is simplified and direct. Very little theory is expressed. Instead, whenever possible, the words of the owner reporting an experienced method are used. To secure these "tested experiences" several hundred plans and methods have been inspected so that the result has been the selection of the best and most workable methods available.

While all of these suggestions and plans may not apply to each individual station, it has long been recognized that ideas of this sort may be transferred and adapted from one station to another. An alert station owner, therefore, will find much in this book which will be helpful in developing his merchandising policies and methods, and will be able to adapt those particular suggestions which he believes will be helpful to business. The manual contains 240 pages and over 100 illustrations. Copies are available at a price of $2.50 from the association's offices in the Mayer Building, Milwaukee.

Production in Iran Reaches All-Time Peak in Year

Crude oil production from Iran touched an all-time peak in 1937, according to final figures just released by Anglo-Iranian Oil Co. Production for the year totaled 10,167,795 tons. Converted on a basis of 7.51 bbls. per ton the output amounted to 14,792,267 bbls., or a daily average for the entire year of 209,178 bbls.

December production amounted to 781,000 tons and during January this year output totaled 769,000 tons, or 5,775,190 bbls. The daily average output of 186,296 bbls. in January was slightly below that in December and fell short of the average for 1937. The sharp spurt in production during the second and third quarters served to bring up the year's average and is expected to do so again this year. January production last year totaled 750,000 tons, or 5,632,500 bbls. and a daily average of 181,693 bbls.

★ ★ ★ ★ ★

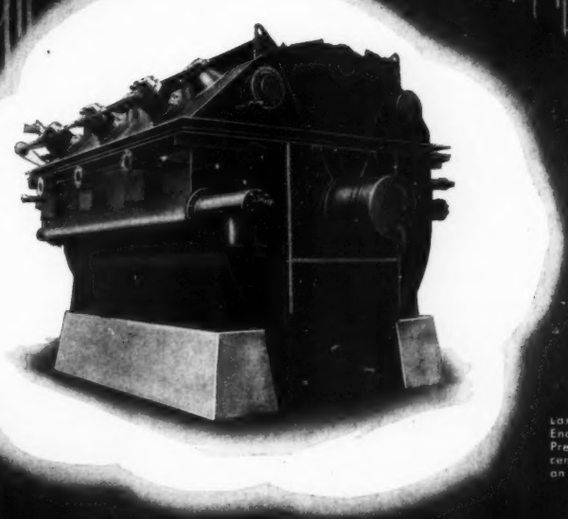
OLIVER PRECOAT FILTER

on Exhibition at the
TULSA CONVENTION
Booths 56 and 57—Refinery Section

It's the Modern Method of Filtration and Clarification

OLIVER UNITED FILTERS INC.
NEW YORK CHICAGO
SAN FRANCISCO

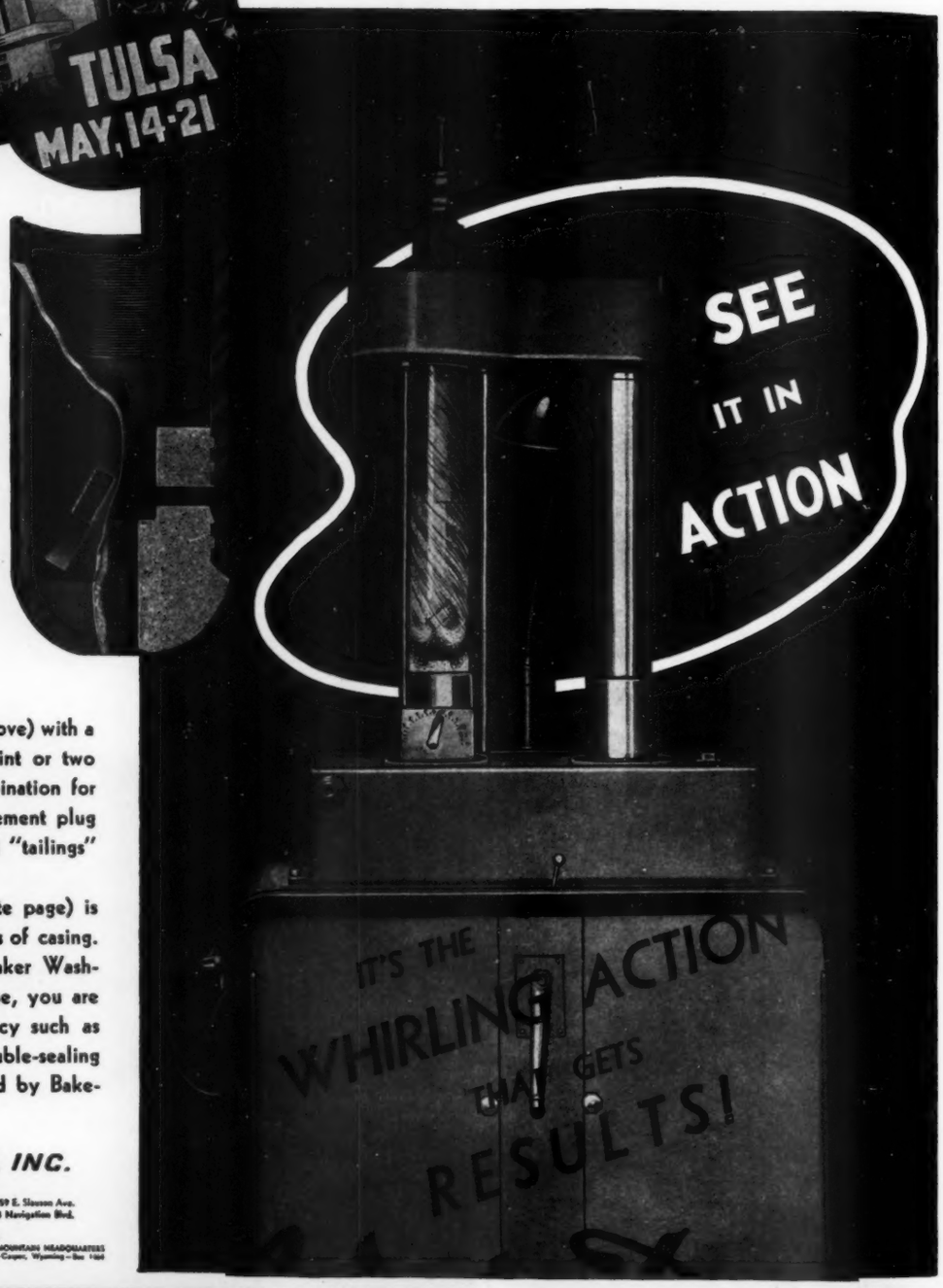
T. G. Laney, Tulsa, Okla.



Large, Totally-Enclosed Oliver Precoat Filter Recently Shipped to an Oil Refinery.

★ ★ ★ ★ ★

Come & Judge WASH-DOWN



BAKER CEMENT WASH-DOWN WHIRLER GUIDE SHOE

THE GUIDE SHOE (just above) with a Baker Cement Float Collar a joint or two above the shoe is a perfect combination for operators who prefer to stop the cement plug above bottom and retain cement "tailings" inside the shoe.

The Float Shoe (see opposite page) is safe for the longest, heaviest strings of casing. And regardless what type of Baker Wash-Down Whirler Equipment you use, you are always certain of Valve Efficiency such as only a buoyant Bakelite Ball, (double-sealing against a small rubber ring backed by Bakelite) can provide!

BAKER OIL TOOLS, INC.

Telephone JEfferson 8211 – HUNTINGTON PARK, CALIFORNIA – 2959 E. Slauson Ave.
Telephone WAyside 2108 – HOUSTON PLANT AND OFFICE – 6023 Navigation Blvd.
MID-CONTINENT OFFICE AND WAREHOUSE:
Telephone 2-6085 – Tulsa, Oklahoma – 312 East Fourth Street
WEST TEXAS BRANCH OFFICE
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EXPORT SALES OFFICE
Rm. 1914 – 19 Rector St., New York City
Tel. Digby 4-1615
ROCKY MOUNTAIN HEADQUARTERS
Tel. 2330-Casper, Wyoming – Box 1266

BAKER *Wash-Down*

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Use For Benzyl Alcohol In Petroleum Refining

We have recently been informed that benzyl alcohol is used by petroleum refiners but beyond this one statement we have no indication of just what use is made of it. Will you be good enough to tell us whether or not you may know of commercial applications of this material?—P. M. W.

We do not have definite information covering the use of benzyl alcohol in petroleum refining beyond the suggestion that it may have application in solvent methods for manufacturing lubricating oil.

A colorless liquid, benzyl alcohol has the following characteristics: Formula, $C_6H_5CH_2OH$; specific gravity, 1.05; melting point, 5° F.; boiling point, 323° F. It is very slightly soluble in water, but miscible with alcohol, ether, and other organic solvents.

Benzyl alcohol is of interest as an isomeride of the three cresols, hydroxytoluenes, represented by the formula $C_6H_4CH_3OH$.

Explosibility of Vapors From Petroleum Liquids In Air

Are the ignition limits, by volume, of the vapors from all petroleum liquids about the same? What I have in mind is this—Suppose a heavy lubricating oil were changed into vapor, also a kerosene, would the volume of these vapors in air that would ignite be about the same?—J. W. W.

At one extreme there may be 100 per cent hydrocarbon vapor, which cannot burn until air or oxygen is introduced, and at the other a very small quantity mixed with air which is the region of explosibility. The range of explosibility for the hydrocarbon gases and vapors is not very wide, being of the order of 1.5 to 6 per cent by volume in air. However, the very lightest, including methane, ethane and natural gas, may produce explosive mixtures with air up to about 15 per cent. When the hydrocarbon is present, with access of air in larger quantities there is no explosion, simply quiet combustion upon the introduction of a flame.

The heavy oils, lubricating oil, fuel oil, etc., cannot be changed into vapor, except when heated to high temperatures. The mixtures of hot vapors and air are positively explosive, the ratios extending to the lower limits above mentioned. The explosive limits for kerosene vapors are relatively low, varying with the quality. Demonstrations have shown the low figure of 1.1 per cent, indicating that kerosene is more hazardous than gasoline in this respect. In a general way, it is true that the heavier vapors fall in the extremes of the lower limits.

Gurwitsch-Moore refer to the investigations of Thornton, who devised this formula for calculating the lower limits of explosibility of mixtures of hydrocarbons with air—

$$m + (2n - 1)$$

in which m denotes the hydrocarbon molecule, and n the number of atoms of oxygen necessary for the complete combustion of this molecule. For example, according to this formula, for one volume of pentane vapor 15 volumes of oxygen, or 75 volumes of air, are required; therefore, the lower limit of explosibility of a mixture of pentane with air is 1/76th or 1.35 per cent (by volume) of pentane vapor. The upper limit of explosibility, according to Thornton, is approximately double the volume of hydrocarbon vapor with which complete combustion is possible; thus for pentane, which requires eight times its volume of oxygen for complete combustion, the upper limit of explosibility is about the proportion of 1 volume of air, or a proportion of 1/21st or 4.76 per cent of pentane to air.

References: Gurwitsch-Moore, Petroleum Technology, page 246. Thornton, Philosph. Mag. 33, 190, 1917.

Origin of Petroleum and Porphyrins

It is explained that the origin of petroleum is definitely placed as organic, probably marine, through the discovery of the presence of porphyrins in crude oil. Will you tell me what porphyrins are?—P. S. D.

The porphyrins are complex chemical compounds derived from both animal and plant substances. The relation of these compounds to the origin of petroleum has been discussed by Karl Krejci-Graf, as reprinted in the Library Bulletin of Abstracts.

The red coloring matter of the blood of animals, haemin, and the green of plants, chlorophyll, have both left derivatives in petroleum. The derivatives of chlorophyll are called desoxophyllerythro-aetioporphyrin and desoxophyllerythrin; the haemin derivatives are called mesoaetioporphyrin and mesoporphyrin.

These substances, in addition to having long names, have a very complicated chemical structure. They contain over 60 atoms arranged in six rings. Such compounds are formed nowhere in inorganic nature and their presence in petroleum shows its origin from plants and animals. They are easily decomposed and are not stable in fresh water rich in oxygen; many more stable compounds are destroyed in such deposits. It is not impossible, however, that petroleum deposits are the result of accumulation of very widely distributed minute quantities of organic residues.

The two types of under-water deposits that are rich in organic substances are also rich in porphyrins. At first they differ from the haemin and chlorophyll only by the splitting off of iron, or magnesium; but later, in the completed deposits, they are of the same kind as are found in petroleum.

Copper, nickel, vanadium, and molybdenum are commonly found in petroleum ash, the latter two roughly in the ratio of V:Mo = 10:1. In fresh-water deposits they are present only in very minute quantities. Only sapropels contain regular enrichment in these metals, a circumstance due probably to their being precipitated by hydrogen sulfide in the water overlying sapropel ground.

Some petroleum may have been formed from this action; probably there were additional sources of an organic character. There is much evidence suggesting that the most important source was marine life.

References: Information as to Deposits, Geochemistry, and Origin of Petroleum. Karl Krejci-Graf. Bohrtechniker-Zeitung, 55, 145, 1937. (From Library Bulletin of Abstract, 12, 172, 1937.

Special Petroleum Naphthas

I will appreciate your advice as to where I may obtain information concerning the manufacture and use of solvents derived from petroleum. I am further interested in the specifications covering these solvents.—S. A. C.

The manufacture of special petroleum naphthas, their use as solvents, and the specifications have been discussed in numerous articles published during the past 10 years in The Oil and Gas Journal. The introduction of improved fractionating towers and operating methods has made it possible for the refiner and natural gasoline manufacturer to separate in pure form some of the hydrocarbons or combinations which distill over a very close range in temperature. Such fractions are known as special naphthas. These are essentially propane, butane, pentane, heptane, octane, or mixtures of them and related hydrocarbons.

Naphthas of this type are made which distill completely within a few degrees, 50, 100 or 200 degrees, as required for the special purpose. These include use as solvents for the rubber industry, the manufacture of varnish and paint removers, in combination with other substances and to a large extent in the preparation of varnishes and paints under the general name mineral spirits.

The product designated Stoddard Solvent has been of importance in dry cleaning for many years. It may have a distilling range of approximately 200° F. with 50 per cent off at 350° and 90 per cent at 375°. All special naphthas should evaporate rapidly, without leaving a stain on glazed paper, and must be free from color, 25 Saybolt being the minimum.

The use of these naphthas in varnishes and paints requires that they shall be free from strong or objectionable odors, also be sweet to the doctor test.

The consumer frequently stipulates additional requirements, especially extremely low sulfur content, to insure delivery of a product of high purity.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Hydrogen

Use—Oxy-hydrogen welding flame and hydrogenation.

Form—Colorless, odorless, combustible and tasteless gas; supplied in cylinders.

Symbol—H.

Specific gravity—0.06952.

Melting point— —434° F.

Boiling point— —422° F.

LIMITATIONS

Technical Grade

Specific gravity	0.069
Oxygen	None
Purity, per cent	99.9

Note. Explosive when mixed with air or oxygen.

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Disposal of Petroleum Wastes on Oil-Producing Properties

The first commercial use for petroleum was as a medicine. This crude oil was secured from seeps or skimmed from the surface of brine producing wells and usually associated with water. When wells were drilled for the purpose of securing crude oil it was soon learned that salt water broke into the hole after some oil had been produced so the water problem has always been with the oil man.

While it is hard to secure statistics on the ratio of oil to water it has been estimated that for each barrel of oil about 4 or 5 bbls. of water is brought to the surface and disposed of in some manner. This has always been a major production problem and has at time developed so acute in agricultural areas the Bureau of Mines in cooperative agreement with state agencies has made a special study of it and several reports have been prepared dealing with the subject.

The most recent of these joint reports is known as R. I. 3394 issued by the Bureau of Mines in March, 1938, and entitled "Disposal of Petroleum Wastes on Oil-Producing Properties" and it is the joint work of Ludwig Schmidt, senior petroleum engineer, and C. J. Wilhelm, associate petroleum engineer for the Bureau of Mines at Bartlesville, Okla., with a chapter on "Soils and Water Resources of Kansas Oil Areas" by Ogden S. Jones, geologist, Division of Sanitation, Kansas State Board of Health, Lawrence, Kans. The work was done under a cooperative agreement between the Bureau of Mines and the Kansas State Board of Health.

The report contains much valuable information covering both the general problem and specifically giving instructions on approved and tested methods of handling emulsions and disposing of brines. The problem is by no means simple nor can broad general rules be laid down because local conditions have much to do with the treatment and disposal problems.

There are two distinct phases of the general problem. The first deals with the separation of the oil and water after it reaches the surface. The second covers disposing of the waste oil and the salt water in such a manner as to cause the least possible property damage.

Mixed oil and water is usually referred to as an emulsion. It may vary through a very wide range in its characteristics and require various processes for breaking it down and separating the water from the oil. It is very essential that water be as free as possible from oil because a small volume of crude mixed with salt water may cause much more damage to vegetation than brine alone.

After the oil and salt water has been separated it is necessary to make some disposition of the oil. It may be burned but in some instances it carries too much water to make this a satisfactory manner of disposal. There may also be bottom sediment that contains appreciable quantities of sand and clays which cannot be burned. Of it may be that the oil can be reclaimed and used for fuel or for road making. In one instance cited in R.I. 3394 the reclaimed oil sold for enough to cover about 60 per cent of the treating costs.

The salt water has to be disposed of in some manner whereby it will not cause damage to crops or contaminate fresh water supplies or do harm to vegetation or timber along the stream. If it is accumulated in open pits and permitted to be flushed into streams during flood period it will be so diluted that no damage will result.

Or it may be poured or pumped back into underground formations where it can be accumulated without harming oil producing zones or fresh water bearing sands. This form of disposal is a problem for the chemist as much as for the production engineer, but by working together it has been solved in many areas and it is now common practice to use edge wells for water disposal or to drill holes especially for this purpose.

In the last part of R.I. 3394 Ogden S. Jones, of the Kansas State Board of Health, discusses soil conditions and water resources in Kansas and points out some of the factors which have bearing upon disposal of waste oil and salt water. Several areas in Kansas are discussed in some detail and soils described. Aquifers are traced and their importance as sources of ground water supplies indicated. The last part of the report deals with ground-water movement and points out the need for close cooperation between the agricultural and oil industries.

Bibliography: Shea, G. B., Practices and Methods of Preventing and Treating Crude-oil Emulsions; Bulletin, Bureau of Mines (in preparation). Dow, D. B., Oil-field Emulsions; Bulletin 250, Bureau of Mines, 1926. Stroop, D. V., Report on Oil-pollution Experiments—Behavior of Fuel Oil on Surface of the Sea; hearings before the committee on rivers and harbors, House of Representatives, 71st Cong., 2d Sess., on H.R. 10625, Part 1, May 2, 3 and 26, 1930.

Lane, F. W., Bauer, A. D., Fisher, H. F., and Harding, P. N., Typical Methods and Devices for Handling Oil-contaminated Water from Ships and Industrial Plants; Technical Paper 385, Bureau of Mines, 1926.

Moore and Landes, Underground Resources of Kansas; Kansas Geological Survey.

Dr. Charles Terzaghi, Determination of Permeability of Clay; Engineering News-Record, November 1925.

Factors in Design of Salt Water Gathering System

Salt waters are usually corrosive and damage ferrous metal pipe and equipment. Waters produced along with oil vary from 3,000 to 268,000 parts per million of solids, mostly common salt. It has been found that the deeper the water bearing formation the higher the solid contents. The temperature of the water also has effect upon its solubility and increase in pressure will also increase the solubility. When these brines are produced and temperature and pressure reduced the solids have a tendency to precipitate.

Corrosion and precipitation of solids present two definite problems in handling salt water from oil wells both on the surface or injecting the water into underground formations for disposal or repressuring purposes.

The oil and salt water are run into a separator and the water drawn off from the bottom of the vessel while the oil is delivered to the lease stock tanks. It has been found that if the salt water is allowed to come into contact with the air it will tend to oxidize some of the solids such as iron, manganese and sulfur compounds and they will be precipitated and the brine become acidic. If it is then attempted to return this oxidized brine to the underground formations trouble may be experienced through clogging of pores in the sandstone.

J. E. Bailey, petroleum engineer, Tide Water Associated Oil Company, Kilgore, Texas, presented a paper on "Factors in Design of Salt Water Gathering System" before the spring meeting of the Southwestern District of the A.P.I. Division of Production in Fort Worth, Texas, in which several factors involved in transportation of oil field brine on the lease are discussed. Each brine should be analyzed and the material used for handling them selected, according to this report, having in view securing pipe and fittings and accessories that will be corrosion resisting. Another angle to the problem is precipitation of solids and the formation of scale. Also the oxidizing of the solids in the salt water which would tend to precipitate more readily when oxidized.

Salt water that produces precipitation usually runs high in solids and this makes it difficult to handle. This scale will precipitate rapidly and may form a protective coating in the pipe, thereby preventing corrosion or it may clog the line and necessitate frequent cleaning or replacement.

It is therefore necessary to determine whether the solids will stay in solution until the water reaches its destination. If not, several methods of coping with the situation are suggested for gravity and pressure lines. The salt water may be diluted with fresh water so that all soluble mineral matter will be held in suspense, or chemicals may be used to prevent forming of scale. A third method is to increase the velocity of the water in the lines and cut down precipitation of scale and the fourth scheme is to increase the pressure on the lines which will also decrease the formation of precipitates. If scale is formed it may be removed by the use of scrapers or by steaming the pipe.

Another way to attack this problem of transporting oil field waters is to select material that will resist corrosion and present a smooth surface on the inside of the pipe and vessels retarding the gathering of scale forming minerals. Pipe made from steel, wrought iron and cast iron has been found to have varying lengths of service in the fields. Each particular problem requires detailed study and there is enough data available based upon past experience in handling brines to permit the user to form a fair idea of what is best to select for his needs. The next thing to be considered is economy because it is not good practice to install high priced equipment for short-lived leases. It is true good equipment may be salvaged but on the other hand it is difficult to find similar conditions on two leases and this might make the second use of equipment difficult and require additional material which might add to the cost.

One of the main factors to be considered in laying out a salt water disposal plant and system is contour of the lease. Gravity lines are desirable and it is usually found possible to locate the central plant where the treated water can be delivered by gravity to the disposal well or to evaporation ponds and this will save a considerable sum over the life of the lease.

In his paper Mr. Bailey includes a graph showing capacity in barrels per day for vitrified salt glazed sewer pipe; connections and pit for salt-water gravity line and connections at salt water pick-up reservoir. A number of pictures are also included showing different details of gathering system installations.

See it at the Tulsa Oil Exposition

See Our Exhibit
INTERNATIONAL PETROLEUM EXPOSITION
TULSA
MAY. 14-21

PERFEX RADIATORS

ARE USED ON LEADING OIL FIELD EQUIPMENT

PERFEX CORPORATION · MILWAUKEE, WIS.

MULTI-SEAL FRONT DRIVE RIVETS

Tomorrow's Rivets Today for Construction and Maintenance

The Multi-Seal Rivet was developed to meet the demand for a device which could be quickly and permanently installed without shut-downs. It's installation is rapid and simple, and can be completed in three-quarters of a minute by one operator, working from the outside only. It can be used on pipes and recepticles carrying oil, gas, water or air and is capable of withstanding high pressures. It is not affected by rust, corrosion, or electrolytic action. It is the only practical means of repairing cracks where expansion and contraction are to be considered.

Write for a Sample

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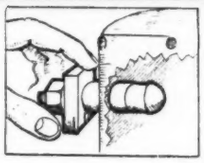
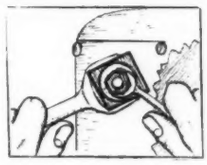
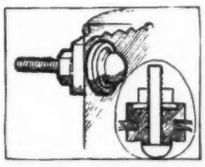
123 N. JEFFERSON ST., CHICAGO

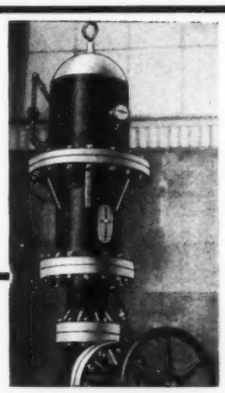






ABOVE—Inserting Rivet. UPPER RIGHT—Method of turning Hex Nut Down. RIGHT — Completed Effect.

MAKERS OF THE STEEL FRONT DRIVE RIVETS AND PIPE CONNECTOR



MID-CONTINENT

Automatic-Safety-Low Pressure

SURGE CHAMBER

This new Safety Surge Chamber is designed for use on oil pipe lines to absorb pump surges. Only 100 lbs. of air is used to cushion the 700 lbs. of fluid pressure carried in the line. This eliminates the hazards and cost of maintaining a high pressure air system.

The air in this new chamber does not come in contact with the fluid at any time. The principle of design used is the same that is used in balloon tires for automobiles—low pressure cushion.

It is only necessary to replace air over long intervals as the air is held in separate chamber with no means of escape.

PATENTED AND PATENTS PENDING

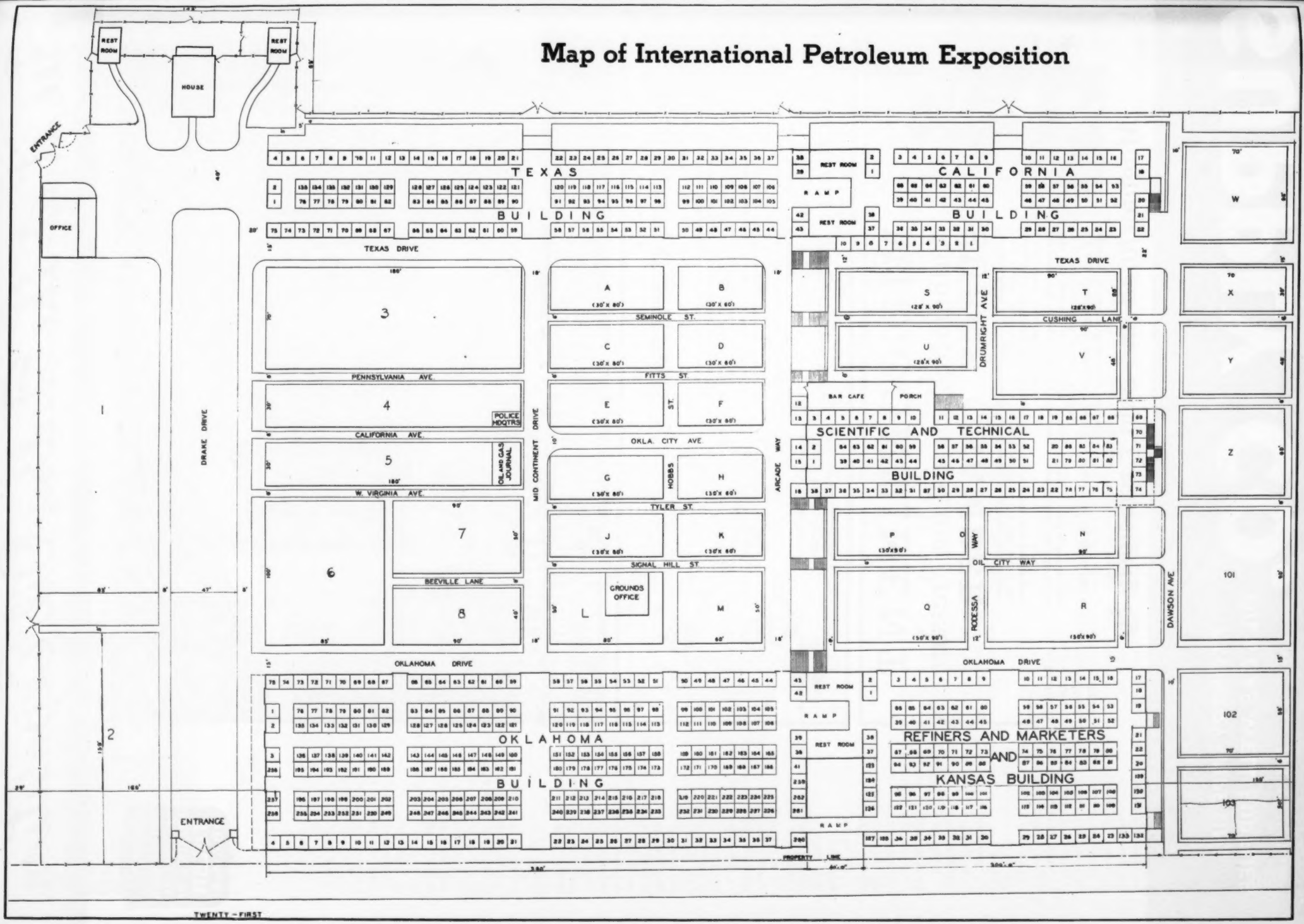
Manufactured and Sold Exclusively by

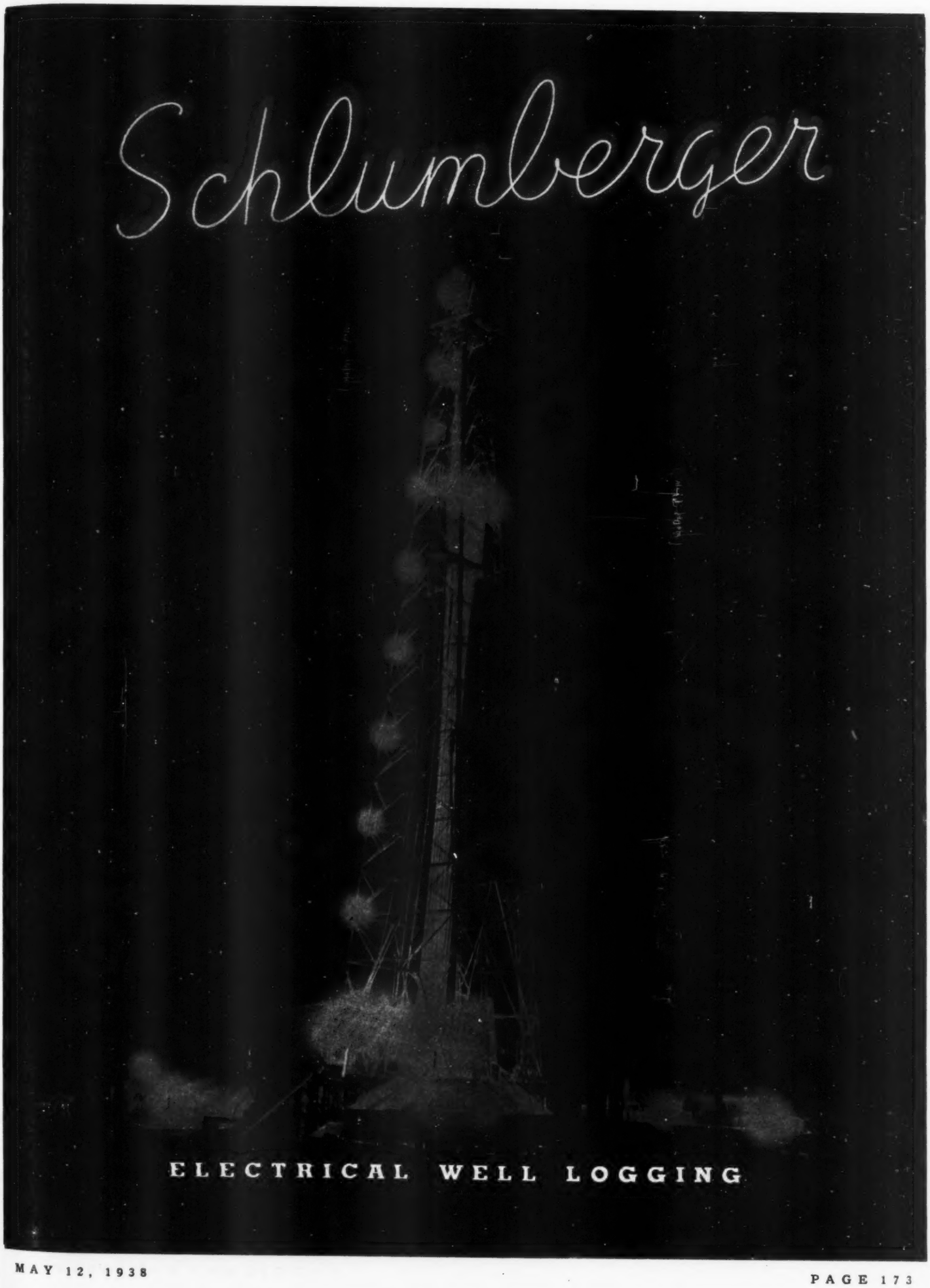
SUPPLY CO.

REFINERY · PIPE LINE · OIL & GAS WELL SUPPLIES

General Offices Fort Worth, Texas

Map of International Petroleum Exposition




Schlumberger
ELECTRICAL WELL LOGGING

Exhibits and Exhibitors at International Petroleum Exposition, Tulsa, May 14-21

Acme Foundry & Machine Company
Blackwell, Okla.

79 Oklahoma Building

In attendance

E. L. GRAHAM — E. C. GRAHAM
E. D. HECKMAN — HARRY KESSLER
FRED FOGG

Exhibiting: Hot oil pump plungers, cylinders, liners, pistons, cylinder heads, etc. All made from "Acmeloy" metal.

Aero Exploration Co.
Tulsa, Okla.

71 and 72 Scientific and Technical Building

In attendance

FRED Q. CASLER — JACK QUIGGLE
LOUIS DESJARDINS — AL CROPUN
OLE HOFF — DON WILEY

A sterocomparagraph, an instrument for measuring differences in elevations on aerial photographs, will be demonstrated. Will show a number of examples of geo-

logical mapping by means of steroscopic analysis of aerial photographs, also several examples of aerial photographs as applied to pipe line surveying.

A motion picture "Winged Camera" showing how an aerial survey is made from the time of take-off through the various stages of developing the prints and assembling the pictures into the completed map will be shown continuously.

The Aganox Company, Inc.
New Orleans, La.

50 Scientific and Technical Building

In attendance

R. A. LATHROP — E. R. SMITH

Aganox, shown in the exhibit, is a liquid, shipped in drums, ready for direct introduction into feed water, circulating water systems, brine tanks, etc. It makes a solution which boils at a lower temperature than does the original feed water. It reduces surface tension. It absorbs dissolved oxygen, in filtered water or any boiler feed water, to such an extent that, according to the manufacturer, it no longer is actively aggressive in causing corrosion.

Scale and rust are removed and prevented from reforming. This action is slow, each 30-day period showing a marked improvement. In boiler feed water Aganox produces a steam which carries less moisture, resulting in a dryer steam, thus increasing plant efficiency. Decided saving in fuel is said to attend the use of Aganox. When applied in either calcium or sodium brine, Aganox is said to clear up the brine, remove the scale and incrustation from ice coils and cans, and thus give faster freezing.

Used in condensers, it is said to remove and prevent scale and rust in condenser tubes, thus helping to reduce head pressure. In cooling systems, jackets, or internal-combustion engines it is said to remove and prevent rust and scale formations, thus hastening transfer of heat.

Ahlberg Bearing Company
Chicago, Ill.

32 Texas Building

In attendance

O. K. WRIGHT — P. G. HULL
C. G. STONE — P. H. STAERK

Display consists of three different lines, of which the company's new ball bearing pillow blocks will be featured. These are entirely new in design, distinctive in appearance and contain patented features found only in CJB units. Notable among these features is the new method of locking the bearing to the shaft. Three series are available for light, medium and heavy loads.

The second item in importance to the user of bearings is our line of Ahlberg ground bearings. Ahlberg ground bearings are ball bearings which have been reconditioned to the highest standards of new bearing manufacture. The raceways (ball tracks) of worn bearings are precision ground and lapped to provide new surfaces. New oversize balls and a new retainer are fitted, making the completed bearing the equal in service to that bearing when new. Ahlberg ground bearings are sold only on an exchange basis at a substantial saving to the user.

The third item to be displayed is the line of CJB master ball bearings. These are precision made new bearings of the highest quality. They are made in standard single row, angular contact, double row, and self-aligning types. They are interchangeable, type for type, with other well-known bearings.

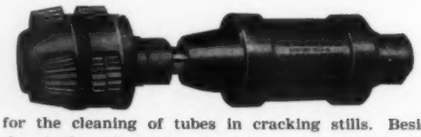
The Airetool Manufacturing Co.
Springfield, Ohio

41 Refiners and Marketers Building

In attendance

DOUGLAS FRAZIER — L. D. BARNETT

Exhibiting a complete line of tube cleaners for every cleaning condition found in a refinery. Included there is a complete line of motors and cleaning heads



for the cleaning of tubes in cracking stills. Besides the single and double expansion regular heads there is also shown a new type of long surface single expansion head known as the "M" type, which head is especially adapted for extra heavy thickness of coke. An interesting feature of the exhibit is a complete line of small cleaners most of which have but recently been developed for the cleaning of heat exchanger and condenser tubes. These cleaners are shown in two types: those that enter the tube in connection with operating hose and the other for hard and thick coke that cleans by means of shafting connected to a powerful geared outside motor.

Air-Maze Corporation
Cleveland, Ohio

3 Scientific and Technical Building

In attendance

A. D. BARR — C. J. GLANZER
P. C. HUNGERFORD

Having observed the need for an oil bath type air filter that would not only render highly efficient service as an air cleaner, but would also withstand any backfires which may occur, Air-Maze Corp. engineers recently designed a new type filter unit. Heretofore it has always been necessary to place "relief" valves on the intake pipe elbows or ends of many large engines in

Patent pending

order to avoid damage to filters due to backfires. The new Air-Maze units eliminate that expensive procedure as a backfire valve may now be incorporated, upon request, as an integral part of the air filter.

Interior construction follows in general the field proven Air-Maze principles. When air is drawn under the hood edge and passes down the skirt, the oil in the sump automatically washes the large circumferential filter element which is constructed of a maze of alternately placed and exactly spaced flat and crimped galvanized screens having selected meshes. The top or hood of the new filter is fitted with a complete backfire valve assembly mounted on a web casting which screws onto the filter center stem. The valve rests on leakproof gaskets and is spring loaded; it quickly returns to normal position after relieving pressure. In the illustration the valve is shown in raised position as though a backfire had just occurred. By turning the valve assembly counter-clockwise, using the handles provided, the valve may be quickly removed and the entire filter disassembled for inspection or servicing.

Available in sizes especially intended for engines requiring 450 to 4,000 c.f.m. of air per minute. Adaptable to interior or exterior mountings.

A. K. Supply Co.
Tulsa, Okla.

43 Scientific and Technical Building

In attendance

PAUL KING — HUGH ACOCK

Products of the Mercoid Corp. and the Wheelco Instruments Co. Items in the Mercoid line will consist of mercury switch, controls and general applications to control temperature, pressure and fluid level and will include the new series 200 close differential controls, magnetic valves and explosion proof controls.

Wheelco Instruments will consist of the Flame-otrol,

a combustion safe-guard for gas fired boilers, furnaces and ovens. Indicating pyrometers for general applications. Controlling pyrometers of both the on-off and proportioning type. The program controller which is a new instrument consisting of a standard controller coupled to a program unit containing a revolving disc which acts as a cam to change the control setting. By cutting the contour of the disc, any program of control may be had and the temperature may be raised or lowered at any predetermined time. The exhibit will show various portable instruments including the new Potentiometer for testing and calibrating pyrometers and thermocouples.

Air Reduction Sales Co.
New York

31-32-33 Oklahoma Building

In attendance

C. D'W. GIBSON — J. F. PRYOR
J. J. LINCOLN, JR. — H. W. READE
W. MIKE MURPHY — G. VAN ALSTYNE
J. F. CALLAHAN — A. N. KUGLER
V. FORGETT — D. LLEWELLYN
I. B. YATES — E. C. ACKERMAN
D. F. McCANDLISH — W. WHALEY
R. R. THOMPSON — A. J. VROOMAN, JR.
H. D. KOPPER — M. F. DUNNE
L. D. SUGG — H. T. WADLEY
J. S. STEVENS

Air Reduction and its affiliate organizations, the Wilson Welder & Metals Co., Inc., and National Carbide Corp., will exhibit their products and processes of particular interest to members of the petroleum industries. The latest techniques and improvements in equipment used in the Aircowelding and electric are welding of piping and casing will be demonstrated.

In addition to displaying Airco's well-known group of welding and cutting gases, equipment and supply items, the exhibit will feature the new Wilson "Yellow Jacket," a machine especially designed and built to meet the needs and conditions of pipe line and casing welding; the Airco-DB pipe beveling and cutting machine; the Airco-DB two-stage regulators; Nos. 4 and 10 Radiagraphs (gas cutting machines); National Carbide V-G Lights and Carbide, Stoody hard-facing materials and Pureco Carbonic Gas and "Dry-Ice."

For the particular benefit of the many manufacturers of equipment used in the oil industry attending the show, the company will demonstrate the Airco-DB No. 6-A Oxygraph. This gas cutting machine will cut rolled sheets, plates, slabs, forgings or billets in any thickness practicable for machine gas cutting in a variety of shapes ranging from straight lines and circles to irregular patterns. Most of these items will be shown in actual use in the flame hardening of metals, the hard-facing of worn surfaces to lengthen the service life of parts so treated and numerous other applications.

Alfol Insulation Co., Inc.
New York

230 Oklahoma Building

In attendance

J. E. P. MORGAN — R. J. SCOTT
H. L. CLARK

Alfol all-metal prefabricated heat insulation panels, shown at exposition for the first time. These panels are factory engineered and fabricated to specifications. Applied with one erection operation, by unskilled mechanics. The all-metal construction includes metal jacketing, fireproofing, waterproofing and insulation. Panels are removed and replaced intact, for tank inspection and repair, and are also interchangeable on tanks of similar sizes. Practically no maintenance cost. Applicable to oil and gas refinery and storage equipment of all types.

Allen-Bradley Co.
Milwaukee, Wis.

21 and 79 Scientific and Technical Building

In attendance

ALLEN K. WOLFE

Two automatic reduced voltage starters will be exhibited—one for synchronous motors and the other for squirrel-cage motors. These starters will have their control circuits wired up, and the starters will go through their normal operating functions.

In addition there will be five large display panels on which a number of Allen-Bradley standard starters will be mounted. Included will be across-the-line squirrel-cage motor starters, starters for multi-speed squirrel-cage motors, slip-ring motors, single-phase motors, and multi-speed, squirrel-cage, and slip-ring drum controllers. Most of these starters will all operate on the solenoid principle, which has been instrumental in making modern switch mechanisms simple and trouble-free. Standard, water-tight, and explosion-proof enclosures will be on display. Many such control accessories as push button stations, limit switches, solenoids, float and pressure switches, rheostats, and relays will be mounted on the control panels.

One of the outstanding features of the display will be the newly designed triple-rated motor starter. This starter will be of standard solenoid construction, but will have three ratings—5 hp., 10 hp., and 15 hp., at 440 volts, three phase, 60 cycles. This starter will be used to control pumping motors of the across-the-line squirrel-cage type. Because of their greater flexibility, triple-rated motors are becoming increasingly popular in the oil fields.

The triple-rated starter will be equipped with three receptacles and a plug. It will be necessary only for the operator to insert the plug in the receptacle corresponding to the horsepower rating he desires. This plug automatically takes care of all the necessary reconnections of the motor windings.

Allis-Chalmers Mfg. Co.
Milwaukee, Wis.

Blocks A-B-D and Q

In attendance

OSCAR HAAS — R. I. MOORE
MR. McCARGAR — MR. EDELMAN
MR. ENTERS

This company will exhibit an example of its complete line of rotary drilling equipment in operation. One of these rigs will be what is known as Type RB-1, which to date is the largest direct current rig of this type built. It has been designed for operation of largest known slush pumps. The company also will display its latest type electrical-mechanical rig, as well as its latest type full mechanical rig. In order to show the adaptability of the Allis-Chalmers design to the different internal combustion engines, three different types and speeds of engines will be used to drive the three different types of rigs built by the company. They will demonstrate the great flexibility of its rigs in applying to a number of types of draw-works. The company will exhibit a large variety of small apparatus, applicable to many branches of the petroleum industry.

Atlas Imperial Diesel Engine Co.
Oakland, Calif.

Allis-Chalmers Manufacturing Co. Exhibit

In attendance

K. S. RICHARDS

The engines to be exhibited are a pair of eight-cylinder 9- by 10½-inch engines normally rated 275 horsepower at 514 r.p.m. They will be mounted on a rig and connected to Allis-Chalmers equipment and will be in full operation.

The Louis Allis Co.
Milwaukee, Wis.

53 and 54 Oklahoma Building

In attendance

VAN B. HOOPER — L. F. KEELY
RALPH ALBERTS — W. WOOBANK
R. J. OWEN

The outstanding feature of the exhibit, the company says, will be a brutally severe demonstration of the splash-proof qualities of its Splash-Proof electric motor. A 3-horsepower motor, running at 1,750 r.p.m. under its own power will have a strong stream of water about 80 pounds pressure splashing it from practically every angle while the motor is running.

Splashed continuously—and standing in a pool of water for 11 hours a day for the entire duration of the Oil Show—is an extremely brutal test for any motor and demonstrates fully the real splash-proof qualities built into this motor.

The company adds that the first real Splash-Proof motor was originated, developed and pioneered by Louis Allis and is protected by patent No. 2,055,931. This motor is especially designed for unprotected outdoor use for pumping rigs, pumps, blowers, conveyors, mud screens and hundreds of other outdoor applications where the motor will be exposed to rain, snow, hail, sleet and all the other hazards of the elements.

Allsteel Products Manufacturing Co.
Wichita, Kans.

Block "F"

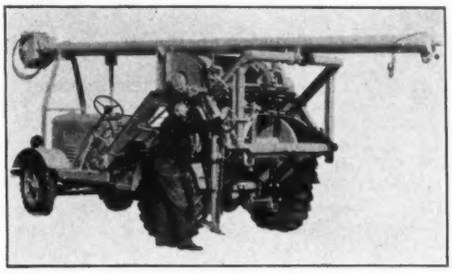
In attendance

H. W. CARDWELL — ARTHUR HARVEY
H. W. CARDWELL, JR. — R. B. CHAPIN
H. E. REECE — R. B. GILMOUR
H. F. RYAN — F. J. OLSON
D. W. RICHARDSON — M. T. JORDAN
J. M. CROWE — B. J. LORTS

Description of exhibit: Models H, K, and R single drum rod and tubing hoists for wells from 4,000 to 10,000 feet in depth, the Model R of this type having hydraulically operated internal expanding band type friction clutch in drum which is an entirely new development.

A Model R double drum unit with spudder designed for general well servicing, cleanout, deepening, or "drilling in" on wells to 5,000 feet.

A Model R combination rotary and cable tool unit with walking beam. The beam can also be used for



Mobilhoist

taking potentials where allowables are based on such tests.

A Mobilhoist designed for general well servicing; with spudder attachment for cleanout, deepening, and "drilling in" with cable tools; with rotary attachment for drilling shallow wells or for core drilling.

A Model V tractor mounted backfiller unit that can be operated under almost any conditions as regards the material to be handled or topography of the country. With attachments, the backfiller can be used for cleaning drainage or irrigation ditches.

A Model PG sideboom, medium size model, displaying the general design of the company's entire line of sidebooms. Its sidebooms are so designed that the load or boom may be raised or lowered while the tractor is in motion. Load can be dropped instantly in case tractor starts to overturn.

Alten's Foundry & Machine Works
Lancaster, Ohio

40 Kansas Building

In attendance

HENRY A. WINLAND — MERLE R. RUFF
EDWARD G. SWEENEY — HAROLD F. MERTZ

Exhibit will consist mainly of Essex Pattern lock cocks, iron stop cocks, check valves, casing heads, tong dies, flexible stuffing boxes and automatic gas drip. The new items of major importance are the flexible stuffing box and automatic gas drip.

The box as illustrated is equipped with a flexible joint or coupling between the stuffing box and pumping tee. This allows the stuffing box to give with the polished rod movement, thereby eliminating wear both on the polished rod and stuffing box. The flexible joint will not leak with the movement of the polished rod. The stuffing box is equipped with a dust proof oil reservoir which provides lubrication for the polished rod and prevents burning of packing should the well pump off.

The patented Alten automatic gas drip is made for use on gas wells or lines where the problem of removing water is present. The exclusive feature of

this drip is that it automatically removes all water without the loss of any gas. All internal working parts are made of stainless steel for resistance to corrosion caused by the salt or fresh water. The outside case is of semi-steel or cast steel depending on the working pressures. The drip can also be furnished in different sizes to accomodate different volumes of water.

The American Brass Co.
New York

97, 98 and 99 Kansas Building

The central display feature will be Anaconda condenser tubes made of super-nickel, Ambrac, Ambraloy, Admiralty alloy, 70-30 brass, Ambronze, red brass, Tobin bronze, Muntz metal, arsenical copper and deoxidized copper. There will also be a few duplex tubes shown. Head plate materials will include Muntz metal, Naval bronze and Admiralty alloy.

There will be separate displays of Anaconda welding rods, Anaconda copper tubes and fittings, Everdur silicon-bronze in the form of welded tanks and cast and wrought parts, and Beryllium copper equipment.

American Can Co.
New York

45 and 60 Refiners and Marketers Building

In attendance

M. J. EBERHART FRED HALL
ELMER NALL

The exhibit will feature 1-quart and 5-quart oil cans and the Canco oil dispensers. Two dioramas, one representing a scene in an oil field and the other a modern service station, will form a part of the display.

American Chain Division of American Chain & Cable Co., Inc.
Bridgeport, Conn.

173-174-175-176 Oklahoma Building

In attendance

Representing American Chain Division
C. A. GOLDSTROHM

Representing Wright Manufacturing Division
D. R. SMITH C. B. VEIT

Representing American Cable Division
J. H. JAMESON J. L. RAGAN
L. G. MOORE S. W. COLLINS

Representing Hazard Wire Rope Division
W. W. RUNKLE E. C. TROUTMAN
J. R. McCREA B. N. BURNS
H. S. FRADY

Representing Reading-Pratt & Cady Division
J. A. BYNUM J. REED
J. P. FERGUSON

Exhibiting wire ropes, chain, fittings, hoists. All of these items are in continuous use in the oil fields. In these booths the company's American Cable Division, Hazard Wire Rope Division, American Chain Division and Wright Manufacturing Division will be located.

The company's Reading-Pratt & Cady Division will have an exhibit of steel, iron and bronze valves, and also miscellaneous fittings which are used in the oil fields, in 157 and 158 Oklahoma Building.

American Forge Division of the American Brake Shoe & Foundry Co.
Chicago, Ill.

12 California Building

In attendance

F. GAUCH F. L. MOORE
F. W. HOLBROOK

American Iron & Machine Works Co.
Oklahoma City, Okla.

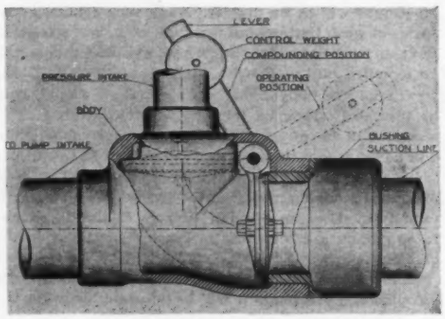
51-52-53 Oklahoma Building

In attendance

J. F. CAILLOUX EARL W. MILLER
JOHN R. RILEY J. J. FITZPATRICK
G. C. ROSS GEORGE KRELL
R. M. COLE F. M. OWEN
B. B. ROBERTS M. G. McCOOL
P. K. RIDGE J. M. TAYLOR
R. E. CRAINE O. L. GARRETT
L. D. MURRAY W. L. MARTIN
JOHN H. BAIRD

Among the new products to be displayed is the automatic compound suction valve, designed to compound slush pumps for drilling wells by the rotary method. The valve is of high value where blowouts are encountered in drilling wells and where blowouts would have to be mudded off by creating compound pressures of both pumps. It is very practical in pumping down cement or other substances where extreme pump pressures are required. The valve is made of the best grade of steel, with safety factor in excess of actual requirements.

The "Simplomatic" cathead and pump manifold



Automatic compound suction valve

valve are two additional new products to be seen at the American exhibit.

The new cathead has been specially designed for use on drawworks having a fast line shaft, but will perform perfectly on any type drawworks as well. Metallic shocks or jars to the cathead have been practically eliminated by lightening the engaging member to which the jerk line is attached.

The new pump manifold valve is designed to be installed next to or as near the air chamber as possible, and affords increased efficiency and safety.

The American Double Bowl type, releasing and circulating overshot, is another important new product to be shown. The advantage of this product is that it provides a fishing tool ready at all times to catch both drill pipe or tool joint. A large group of representative products will be displayed in addition to the new products already mentioned, in actual and miniature size models.

The American LaFrance and Foamite Industries, Inc.
Elmira, N. Y.

102 and 103 Texas Building

In attendance

JAMES A. HARTE D. D. FITZGERALD
E. B. REYNOLDS

Exhibiting a complete line of fire extinguishing equipment, including many new items of particular interest to the oil man.

Among other special equipment to be on exhibit is the Foamite Applicator Type "D." The purpose of the applicator, which is listed as a Type 3 Foam Delivery Device in the 1936 Regulations for Foam Fire Extinguishing Systems of the National Board of Fire Underwriters, is to facilitate introduction of a foam stream into a burning vertical or horizontal tank which is not equipped with permanently installed foam chambers. The Type "D" is suitable for use with foam generators up to 4,500 G.P.M. capacity of either the single or dual powder type. It is available in lengths up to 52 feet. Constructed of dural and stainless steel, it is extremely light in weight and capable of being raised with a minimum of man power.

On exhibit also will be the Type "S" Applicator which is similar to the "D" but of smaller capacity. For protection of smaller bulk stations and in particular horizontal storage tanks and in the extinguishment of seal fires in floating roof tankage.

The Alfite transfer pump, a unit for recharging carbon dioxide extinguishers from commercial cylinders, will be on display, a unit of modern design, all moving parts inclosed, with automatic full force feed and splash lubrication. It is designed for long life. The latest in Foamite extinguishers and a full line of Alfite (carbon dioxide) extinguishers will also be displayed.

American Lubricator Co.
Dallas, Tex.

92 Kansas Building

In attendance

D. L. BEATTY ROY BRUNDAGE
C. M. JOHNSON

Exhibiting:

1. American "Standard" force and sight feed lubricators, and

2. Force and sight feed chemical injectors.

The chemical injector is a new product of the company, having been on the market only a few months.

The American Mfg. Co. of Texas
Fort Worth, Tex.

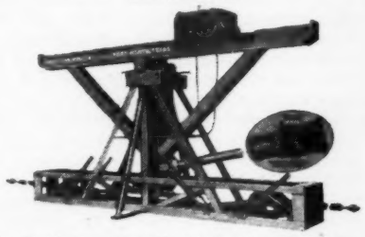
Block 3 Pennsylvania Side

In attendance

W. J. GOURLEY F. H. BARNEY
G. L. MESSER C. E. MEDLEY
ED RANKIN W. H. THOMPSON
JACK PHILLIPS J. E. McKINNIE
PETE KOVACK A. L. BAKER
K. N. MILLS GEORGE HOLMAN

The company has arranged an interesting bulletin especially for the show, entitled "American at Tulsa." An exhibit that will attract the attention of

25,000-pound polish-rod load capacity, 71-hp. twin-crank pumping unit



Pendulum take-off with hook-offs built in

many visitors not familiar with latest methods of pumping four wells from a geared reducer with cranks will be found at its exhibit space. Other modern rod line equipment and four sizes of pumping units will also be shown, all to be powered with gas engines or electric motor and moving.

American Optical Company
Southbridge, Mass.

11 Scientific and Technical Building

In attendance

WALTER G. ENGEL R. A. COX

Exhibit features a complete line of eye protection equipment designed to protect against every industrial eye hazard. In addition, the new American Optical R1000 Respirator for protection against Type A dust will have one of its first showings. Trained industrial safety representatives will be in attendance to explain American Optical service and discuss the merits of individual products. With 218 branches in principal industrial centers, the company is in an excellent position to serve industry promptly and efficiently.

American Recording Chart Co.
Los Angeles, Calif.

63 Scientific and Technical Building

American Roller Bearing Co.
Pittsburgh, Pa.

87 and 88 Oklahoma Building

In attendance

C. F. SUCCOP CARL L. KNAAK
EDWARD D. MALTBY

Exhibiting its standard line of heavy duty bearings. In addition will show a radial bearing of the grooved inner-race type and also a bearing, which in the past few years has proven very successful in slush-pump crossheads and wrist-pin applications.

The company's standard heavy-duty type bearings are the bearings that in a few short years have given such fine performance as to win their way into the specifications of a great many of the most prominent crown and traveling blocks. A large majority of the

(Continued on Page 182)

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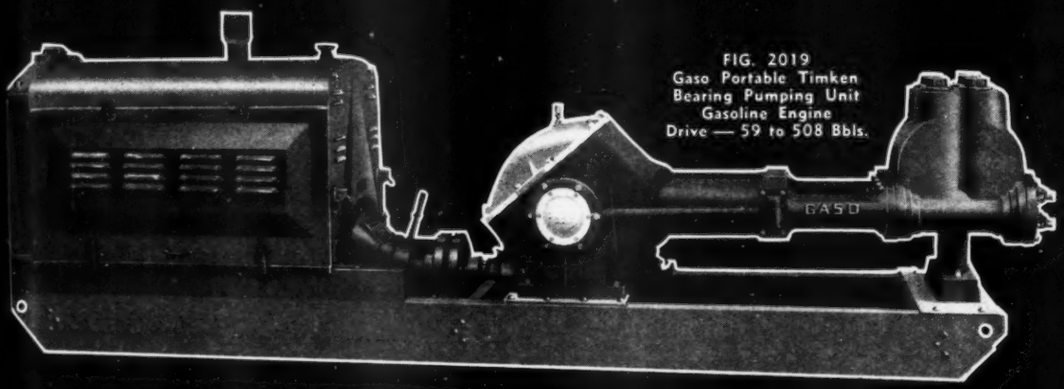


FIG. 2019
Gaso Portable Timken
Bearing Pumping Unit
Gasoline Engine
Drive — 59 to 508 Bbls.

AT THE SHOW

Gaso Bldg., South Half Lot "W"

In response to a demand from customers, GASO is introducing at the Exposition, this year, a much larger GASO Pump than any heretofore offered — 12" stroke, fluid cylinders interchangeable liner type 5 to 7 inches diameter, capacities 275 bbls. per hour at 1,000 lbs. pressure, to 600 bbls. at 500 lbs. pressure.

Fluid end is side-pot type with all valves individually accessible. Completely assembled on skids with Waukesha 6EK Engine, and weighing approximately 20,000 lbs., this unit represents the largest practical semi-portable pumping plant for pipe line service.

In addition to the new pump — Fig. 2652 — we will have on display at the Gaso Building our Fig. 1741 with JK4 Buda Engine, Fig. 2019 with Buda BTH Engine, Fig. 2249 with Buda H-217 Engine, mounted on trailer, Fig. 1550 with GE Electric Motor drive, and Fig. 18-A-44 with P20 International Engine.

Visit our Exhibit, also our Factory, while in the city

GASO PUMP & BURNER MFG. COMPANY

902 E. First St., Tulsa, Okla.

Export Office: 149 Broadway, New York
Los Angeles: Service Oil Field Supply Co., 5333 S. Riverside Drive

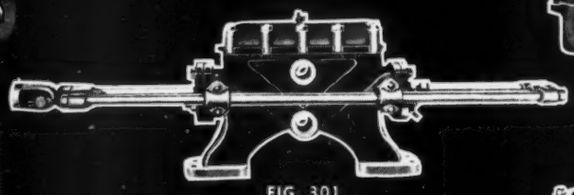


FIG. 301
Gaso Piston
Power Pump
— 32 to 158 Bbls.

FIG. 601
Gaso Walking
Beam Pump
— 30 to 55 Bbls.

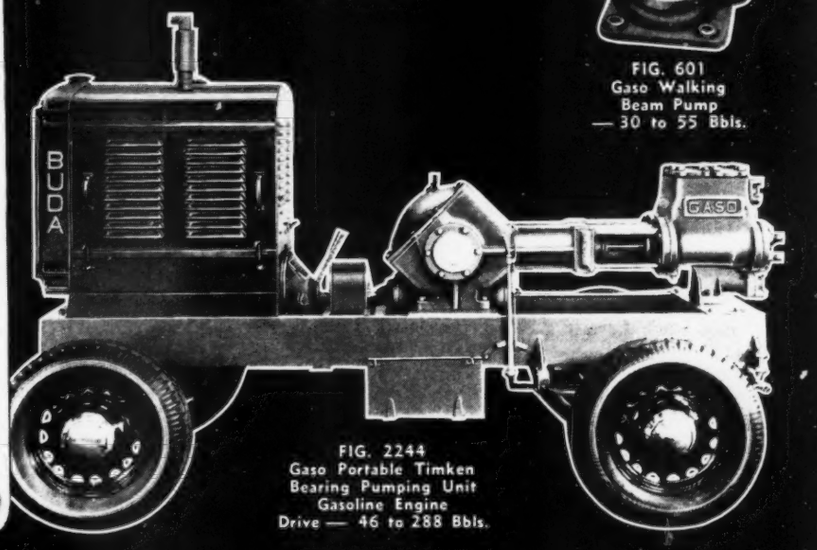


FIG. 2244
Gaso Portable Timken
Bearing Pumping Unit
Gasoline Engine
Drive — 46 to 288 Bbls.

GASO PUMPS

industry's manufacturers of drawworks, winches, rotaries, swivels and many other kinds of equipment in which roller bearings are used to secure improved operating ability have made large use of American bearings. The growth in volume of business, the diversity of application, and the increasingly greater part being given to these bearings by the industry's foremost equipment designing engineers, indicates that they have a well established reputation for satisfactory service under the heavy-duty requirements in drilling and pumping.

The American Rolling Mill Co.
Middletown, Ohio

70 and 71 Oklahoma Building

In attendance

R. E. WALKER T. J. ROBINSON

Products to be displayed include: (1) Armco spiral welded pipe, a unique spiral electric butt welded pipe supplied in a wide range of diameters and wall thicknesses for gas gathering lines and transmission lines; (2) Armco spiral welded surface casing, a special light weight surface pipe of standard O.D. sizes, supplied with either slip-joint couplings or standard A.P.I. threaded ends and collars.

American Sand-Banum Co., Inc.
New York

101 Texas Building

In attendance

FRANK J. WELU M. T. KAPPELE
L. BRADIE

Will exhibit its products which are pure colloidal concentrates for the elimination of scale and corrosion in boilers and engines. Sand-Banum Special will be prominently displayed as this product has met with enthusiastic acceptance by oil operators. It comes ready for use in tablet form and is used in the cooling water of all gas and diesel engines where they have radiator circulating systems. It is guaranteed absolutely safe for all equipment and bears the approval and recommendation of leading radiator manufacturers. It is very simple to use—merely drop one tablet in the system to each 6 gallons of water. This will eliminate all scale, rust, corrosion, dirt, etc., for one month and insure efficient operation. It also proves economical to use as tablets cost only 20 cents apiece. This product has the same colloidal action as Sand-Banum Standard that is used for boilers in all types of industry.

American Steel Derrick Co.
Tulsa, Okla.

Block 4, Drake Drive

In attendance

CHARLES W. FLINT K. S. FLINT
ROY LUNDY W. H. LANG
JOHN F. EATON SAM E. LOY, JR.
HAROLD G. LEWIS

Exhibiting a typical American derrick manufactured by this company, 139 feet high with a 10-foot high interior type or removable type drilling substructure. This derrick substructure is a typical Gulf Coast type. Also showing two self-contained pumping units. One unit to be a 20 horsepower double reduction gear and the other a single reduction 51 horsepower gear unit.

American Zinc Institute, Inc.
New York

6 Scientific and Technical Building

Ames Baldwin Wyoming Co.
Parkersburg, W. Va.

3 California Building

Appleton Electric Company
Chicago, Ill.

63 and 64 Refiners and Marketers Building

In attendance

M. J. WHITFIELD F. S. DONAHUE
N. A. TORNBLOM

Exhibiting the complete line of malleable iron explosion proof Unilets for use in hazardous areas. There will be exhibited junction boxes, plugs and receptacles, switches, circuit breakers, lighting fixtures, panel boards, hand lamps, and a general line of accessories for completing an electrical installation. Besides this, a feature of the exhibit will be an explosion proof Reelite which is an automatic take-up reel for electric cables.

Ampco Metal, Inc.
Milwaukee, Wis.
W. C. Myers & Co.
Tulsa, Okla.

118 Oklahoma Building

In attendance

J. D. ZAISER RAY W. UECKER
W. C. MYERS DICK BAGWELL

The materials to be exhibited will be nonsparking tools, bushings, bars, acid installations, and various valves, cocks and fittings.

Armstrong-Blum Mfg. Co.
Chicago, Ill.

222-223-228-229 Oklahoma Building

In attendance

HARRY J. BLUM FRED J. BLUM, JR.
EARL R. WADDELL L. L. NELMS
ALLAN M. ANDREWS

Will exhibit in actual operating demonstration its full line of Marvel metal sawing machines, including "the world's largest hack saw," automatic high-speed production sawing machines, general purpose shop saws, universal metal cutting band saw machine, also high-speed performance demonstrations of nonbreakable Marvel high-speed-edge hack saw blades.

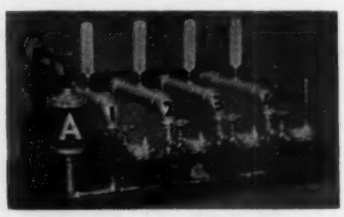
Armstrong Machine Works
Three Rivers, Mich.

94 and 95 Texas Building

In attendance

O. E. ULRICH G. B. ALLEN
T. H. REA

Exhibit will feature Armstrong steam traps for drilling rig, natural gasoline plant, and refinery service. Armstrong gas traps for draining gas well separators, as well as drip pockets on natural gas transmission lines.



The feature of the steam trap exhibit will be a glass model of the Armstrong trap, operating on steam at 5 pounds pressure showing how the trap handles dirt and air, as well as condensate. This glass trap will drain four heating coils. Or these same four coils can be valved off from the glass trap and drained by smaller individual traps. When the glass trap drains the four coils the temperatures will be uneven, and when the individual traps are used all coils will be at maximum steam temperature.

The exhibit of gas traps will consist of a miniature gas transmission line, showing Armstrong traps draining oil separators, bull-plugged wells, and siphon drained river crossings.

Asbestos Manufacturing Co.
Huntington, Ind.

94 and 95 Oklahoma Building

In attendance

H. D. LaMONT WILKES CAMPBELL

Will display brake linings in rolls and in sets for oil field equipment. These materials will include molded friction blocks, AMCOBOND 8200 series for longest life, AMCO No. 348 woven for rotary drill rigs and AMCO No. 344 woven for general industrial use. These brake linings are characterized by quietness of operation, long life, absence of smoke and odor in operation, constancy of friction and the accuracy of control obtained through the use of these linings.

These brake linings are new to the oil industry, having been greatly redesigned during the past year.

Athey Truss Wheel Co.
Chicago, Ill.

Center of Block D

In attendance

J. A. ROBERTS D. R. DEWAR
R. E. PENDLETON

The company will have on exhibit a 20-ton combination oil field trailer. The Athey Forged-Trak principle of steel wheels rolling on steel rails over a self-laying steel roadbed assures steady and consistent all-weather transportation. Drawbar requirement is extremely low because of the "Steel Highway" principle on which Athey Forged-Trak wheels operate.

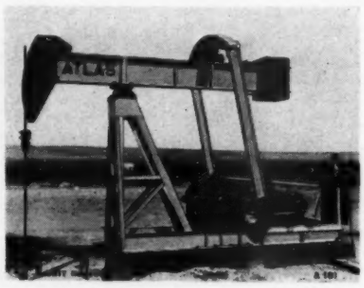
Forged-Trak oil field wagons and trailers are scientifically designed for carrying heavy loads. The frame is specially reinforced and rigid—chassis is spring mounted to cushion loading and roading shocks. They are available in capacities ranging from 6 tons to 40 tons.

Atlas Supply Company
Muskogee, Okla.

Block H Arcade Way, Outside Space

In attendance

J. H. McDONALD J. R. BROOKS
R. M. CARTER H. U. EVERETT
BRUCE E. GOLD R. L. GORMLEY, JR.
R. E. HOWE STEVE C. MAPLES
F. E. MAXWELL ED ROBERTSON
W. E. STITZER



Pumping Unit A-101

Products to be exhibited:
Atlas pumping units.
Weber horizontal and vertical diesel and gas engines.
Gold silencers.
Air starting units.
Driftmeter engine coolers.
Kohler light plants.
Big Four counterbalance.
Myer's house water systems.
Belmont packings.
American Cable Company's wire rope.

Two of the smaller Atlas pumping units will be shown in operation. A 12,000-pound twin-crank, double-reduction unit will be driven by a new Weber, single cylinder, vertical gas engine. The 9,000-pound unit, illustrated, with its dual type of counterbalance will be electrically driven, and is typical of the heavy construction used in the full line.

Weber Engine Company
Kansas City, Mo.

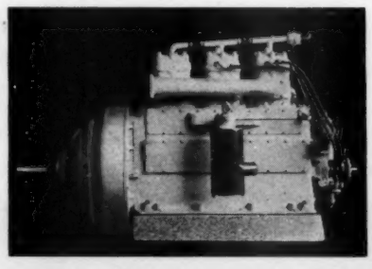
Block H Arcade Way, Outside Space

Atlas Supply Co. Exhibit

In attendance

ARTHUR CLIFFORD, SR. S. B. GOLD
ARTHUR CLIFFORD, JR. ED BROOKS
JACK CLIFFORD P. E. PARKER
T. L. CHAMBERS C. A. SNYDER
E. C. NOBLE

Products to be exhibited:
Vertical one-cylinder, two-cycle gas engine.



Type 3MC three-cylinder, two-cycle diesel Weber engine

Vertical two-cylinder, two-cycle, convertible gas engine.

Vertical three-cylinder, two-cycle, convertible diesel engine.

Horizontal, single-cylinder, two-cycle, convertible diesel engine.

Weber Gold silencers.

Weber air starting unit.

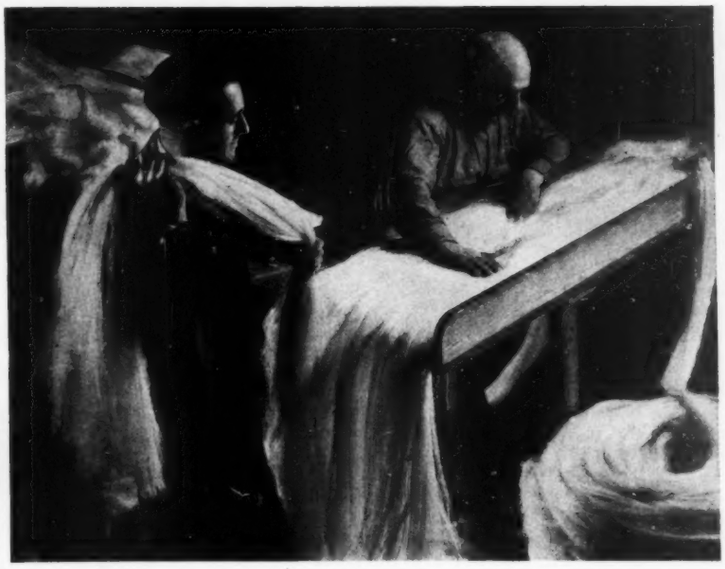
The Weber, Type F, single-cylinder two-cycle 1½- by

Right down our alley

PROPORTIONING EQUIPMENT FOR
PH CONTROL
SLIME CONTROL
CONTINUOUS SAMPLING
SOLVENT TREATING
SULPHUR TREATING
DOCTOR TREATING
CAUSTIC WASH
LUBE OIL BLENDING
CHLORINATION
WATER CONDITIONING
FILTER-AID ADDITION
COLORING GASOLINE
CHEMICAL DILUTION
ASPHALT BLENDING
LUBE OIL TREATING
GASOLINE BLENDING
GUM INHIBITING
ACID TREATING and
ALL OTHER CONTINUOUS TREATING AND
BLENDING JOBS . . .
WRITE DETAILS FOR
ENGINEERING
RECOMMENDATIONS.

Oil Show
Booth
133
TEXAS BLDG.

Proportioneers, Inc.
Associated with Builders Iron Foundry
35 Codding Street Providence, R. I.



The making of Plymouth

Oil Field Manila Cordage
demands unusual *Experience*

PLYMOUTH rope-making machines, ingenious though they may be, are but tools in the hands of men. Without supervision by watchful eyes and trained hands, machine-made rope would fall below the Plymouth standard of durability and service.

In the picture you see experienced ropemakers at work. These men are "feeding the hanks of fiber", a preliminary step in preparing uniform slivers of fiber for spinning. This apparently simple operation actually demands keen judgment born of long experience if, later, the finished strand is to be of maximum uniformity. It is this judgment and experience which maintain the high standard of controlled quality that distinguishes Plymouth Oil Field Manila Cordage. Experience controls the selection of fiber tested for its strength and toughness . . . supervises the spinning and forming of high-quality yarns into strands . . . governs the correct and uniform lay of the ropes . . . regulates the special lubrication to protect Plymouth Rope against internal and external wear . . . and produces such long-service products as—

PLYMOUTH MANILA

Drilling Cables	Crackers
Bull Ropes	Cat Head Lines
Torpedo Line	Spinning Lines

PLYMOUTH CORDAGE COMPANY
NORTH PLYMOUTH, MASSACHUSETTS
Oil Well Supply Co., Distributors—Stores in All Fields

PLYMOUTH
The Rope you can trust

9-inch gas engine is rated at 25 hp. at 550 r.p.m. It is the first medium-speed engine of its type and size, complete with its own cooling system, to be offered for oil field pumping. A newly developed gas carburetor and a large flywheel give smoothness of operation not previously

Type F single-cylinder, two-cycle Weber gas engine

obtained with single-cylinder, two-cycle gas engines. The engine has a roller bearing crankshaft, and accessories usually found only on larger engines. Of interest to operators is the engine's simplicity, as it has only two operating adjustments.

Weber Engine Company's newest product is the Type 3MC three-cylinder, two-cycle, convertible engine. It is built in two cylinder sizes, 7½- by 9-inch and 8¼- by 9-inch. The picture shows the gas engine, although the engine shown at the exposition will be operating as a diesel. The engine embodies the same step-piston construction that has made the performance of Weber twin-cylinder vertical engines so outstanding. As a gas engine it will "hit every shot" at extremely light loads. The three-cylinder engines were especially designed for heavy pumping wells, geared pumping powers, field generating plants, and small pumping stations.

Automatic Electric Company

Chicago, Ill.

17 and 18 Scientific and Technical Building

In attendance

JOHN S. MILLER — CHARLES H. SIM
HOWARD L. HOUSLEY

Description of exhibit:

Particular notice is invited of the 15-station Type 25 P-A-X—private automatic exchange—providing communication between all exposition buildings. The automatic switchboard serving the system may be seen in actual operation. Attention is directed to the many varieties of private interior telephone systems for use in plants. The type in service at the exposition handles up to 100 stations, but there are others which range from 10 or less to elaborate systems handling thousands of stations and embodying many special features. At the present time, incidentally, over 200 oil companies are saving time, steps and money with P-A-X's.

The new explosion-proof telephone is also on display at the booth. This telephone is a perfected instrument which fills a definite need on oil properties.

Men in the geographic survey and remote control divisions of oil companies will be interested in the operating exhibit of relays and stepping switches, keys, lamps, jacks, plugs and signals and their practical application to the petroleum industry.

Baash-Ross Tool Company

Los Angeles, Calif.

44 and 45 Texas Building

In attendance

A. F. BROWN — G. F. BUCKLEY
GLEN JOHNSON — L. F. BAASH
H. C. ROSS

A number of new items of oil field equipment will be on display. Among them will be the Spelts-System cylinder for two-cycle gas engines, and the Baash-Ross self-aligning rotary slips. The display will also include many of the standard items of Baash-Ross equipment such as drill collars, kellys and the widely known Baash-Ross roller kelly bushing, the open-end tubing spider, and many of the rotary bushing tools for which the company is widely known in both domestic and foreign fields.

Bailey Meter Co.

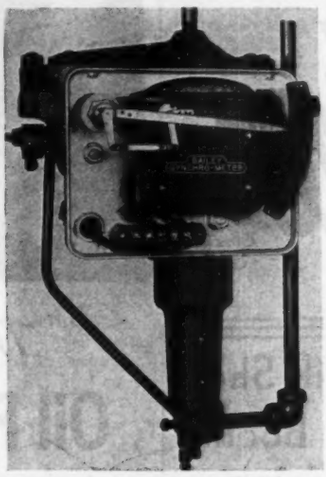
Cleveland, Ohio

47 Scientific and Technical Building

In attendance

C. E. ALBERT — H. M. HAMMOND
C. M. KUNKEL

The new Bailey Syncro-Meter just recently developed will be shown in operation. Basically, this meter consists of a transmitting unit (Figure 1) which is operated by a Ledoux bell flow measuring mechanism of the



type used in standard Bailey mechanically-operated fluid meters, and a receiver (Figure 2) consisting of the indicating, recording and integrating instruments. The transmitter is located at the point of measurement of the variable and the receiver is located at a place or places convenient for obtaining readings from the instruments as frequently as desired.

A number of distinct advantages characterize the Syncro-Meter. For example, the transmitter places only a negligible retarding force on the measuring device. Furthermore, the torque developed to operate the receiving element is very large and does not send any reaction back to the transmitter. No adjustments of the Syncro-Meter are necessary at the transmitting end. It may, therefore, be located in a relatively inaccessible place. Several receivers may be operated from one transmitter.

The improved Bailey Multi-Pointer Gauge for indicating pressures and drafts in furnaces and boilers will also be on display as a cut-away model showing the construction of the diaphragm-operated measuring unit.

An improved Bailey selector valve for use in connection with Bailey Meter automatic air-operated control will be exhibited. This valve permits flexibility of operation between remote manual control and automatic control and permits changing from one type of control to the other in a few seconds' time. A Bailey steam flow-air flow boiler meter with automatic control air pilot and various diagrams showing the application of air-operated combustion control to boilers fired with pulverized coal, oil and gas will also be on exhibit.

Baird Manufacturing Co.

Tulsa, Okla.

8 Texas Drive

In attendance

O. B. LEONARD — P. M. CASTANIEN
J. B. COOK — GEORGE BELSER
MARSH CANNON — L. D. BAIRD

Exhibit will present improvements in fluid seal check valves for oil well pumps and show how by the application of specific metal combinations higher operating efficiency can be developed.

New equipment will include a ball snubber cage incorporating a plunger which continually rides the ball to eliminate ball pounding and cage wear. A V-PAC stuffing box for polish rods that requires no lubrication and automatically maintains its seal for leakless operation by the internal fluid pressure exerted on the lift stroke of the pump. A stroke counter for pumping wells to furnish the exact pumping reversals completed and show the definite service equipment rendered for comparative purposes. A tap and die for cleaning and rechasing the pin and box threads on sucker rods. A safety wheel wrench for sucker rod or wire line twisting. A Bubbel test machine for determining fluid seal tightness.

The company will also show its regular line of pumping equipment and lease tools, demonstrating in particular how rig iron crank arm holes are rebored at the rig, the flexibility of the Expanso wrist pin body fit for both old and rebored holes, and how wrist pins can be pulled without damage.

Baker Oil Tools, Inc.

Huntington Park, Calif.

99, 100, 101 and 102 Oklahoma Building

In attendance

C. E. WHITNEY — C. E. BURT
GEORGE ANDERSON — K. L. TATE
P. V. McGIVERN — L. L. WATKINS
E. F. HANNON — PAUL DAVID
TEX HARPER — J. W. BURKHART
JOE CHASTAIN

The exhibit features new Cement Wash-Down Whirler equipment for landing and cementing casing. The central theme will be based on the company's newly developed and improved line of Wash-Down Whirler equipment including the Baker Cement Wash-Down Whirler float shoe and the Baker Cement Wash-Down Whirler guide shoe.

Baker Cement Wash-Down Whirler float shoe

According to the manufacturer, this Wash-Down Whirler equipment affords several highly important advantages in landing and cementing casing, particularly where bridges and other formation obstructions are likely to be encountered.

It will be noted from the accompanying illustration that this unit is designed with a number of side ports leading out of the valve chamber. These ports are baffled to direct the circulating fluid preceding the cement, and then the cement, downwardly. Thus when running in the hole, the down-whirling or hydraulical action of the circulating fluid cuts away the sides of any bridge that might be present and the formation is readily circulated up the hole as it is removed. The turbulence set up also effectively washes the walls of the hole but the baffled ports prevent a direct jetting action, eliminating any possibility of the side walls being broken down by the force of the fluid. These ports are utilized during cementing operations for the discharge of the cement, creating a whirling action that provides the best possible chance for complete incasement of the pipe with a uniform body of cement for a maximum distance up the casing—reducing the danger of channeling to a minimum.

This company has designed a unique demonstrating unit that clearly illustrates the important action of its new Wash-Down Whirler equipment and this unit will be on display.

In addition to the new items mentioned, the following equipment will also be exhibited:

Complete line of Baker cement guiding, floating and cement equipment.

Baker metal petal basket.
Baker Model B Bakwik drill pipe float.
Baker portable Kelly and pipe straightener.
Baker wall scraper.
Baker wall sampler.
Baker cable tool core barrel.
Baker cement retainer.

Baldwin-Duckworth Chain Corp.

Springfield, Mass.

9 and 10 Texas Building

In attendance

GEORGE J. FIX, SR. — F. J. WESCHLER
HERMANN KLAUCKE — A. T. ARNOLD
GEORGE J. FIX, JR. — J. H. TURNER
T. H. LANKFORD

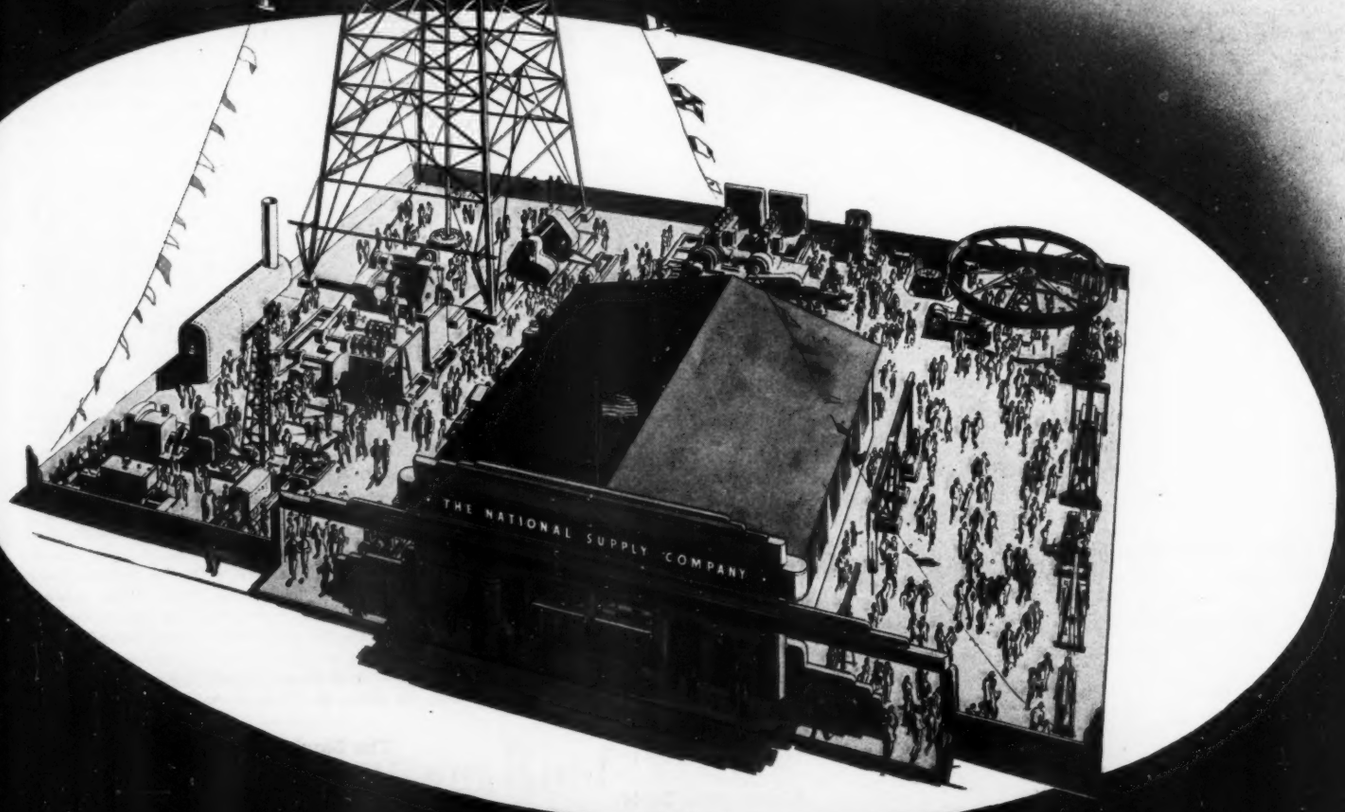
Baldwin-Duckworth Chain Corp. again shows the newest development in power transmission as applied to rotary drilling. In 1922 Baldwin pioneered by in-

NATIONAL'S

Every visitor to the 10th International Petroleum Exposition is cordially invited to visit our exhibit. It affords an unparalelled opportunity to observe in operation the latest developments in modern oil field equipment.

THE NATIONAL SUPPLY COMPANY

EXECUTIVE OFFICES: PITTSBURGH, PA.
DIVISION OFFICES: FT. WORTH, TEXAS; TULSA, OKLA.; TORRANCE, CALIF.
GENERAL SALES OFFICE: TOLEDO, OHIO



EXHIBIT

troducing to the oil industry the first alloy steel heat treated chains made to precision fits. These chains, made in straight side bar construction with ground pins and bushings, have since proved their merit by reducing drilling cost per foot of hole.

At the Tulsa show Baldwin will exhibit the new "Master" series chain, designed particularly for hard, tough, deep drilling. The manufacturer states this new chain has a minimum ultimate strength of 185,000 pounds, the strongest chain ever designed for rotary drilling.

In addition to the "Master" series chain, Baldwin will also display the "Super Service" chain, well known in the oil fields as the straight side bar chain that will not stretch. Also the "Full Flex" series, offset side bar chains, designed for shallow drilling and for use where price is a factor.

Baldwin "Master" and "Super Service" series chains are equipped with the Baldwin patented solid cotter which gives the full advantages of both rivet and detachable construction with none of the disadvantages of either.

Baldwin will show its flexible roller chain coupling, which allows as much as 3 degrees of permanent misalignment in the connected shafts without injury to itself. This coupling using double width chain, has barrel shaped rollers in one strand and standard rollers in the other. The simplicity of construction of this truly flexible coupling, its ruggedness and its nearly frictionless correction of shaft misalignment has caused it to be very acceptable to the oil industry.

Baldwin is also displaying a full line of single and multiple machine-finished roller chains such as is used on unitized rigs, pumps, and auxiliary drives on drilling rigs.

Bantam Bearings Corp.
South Bend, Ind.

49 and 50 California Building

In attendance

J. F. OEHLHOFFEN — R. B. NICHOLS
C. A. BENSON

The exhibit presented will feature all kinds of ball and roller bearings, including thrust, radial and taper types. Rollers will also be exhibited such as used in rock bits by a number of manufacturers, and also for rotary tables.

Two Gumbo Buster swivels will also be available for inspection in two sizes, 6-inch and 8-inch, as built by the American Well & Prospecting Co., Corsicana, Tex. These swivels are equipped with Bantam thrust roller bearings to successfully handle loads involved during deep well drilling, and which have proven to be entirely satisfactory after years of actual field service.

There is no limitation as to one type of bearing, because Bantam manufactures all types of bearings, up to 60-inch diameter, and recommend not just one type of bearing for all positions, but the most suitable bearing for the specific requirement. Quality features presented by the bearings will immediately reveal the reason for recognition of the superiority of Bantam roller and ball bearings.

Specialty items, needle bearings and ball bearings in the standard metric sizes will also be on display by the Torrington Co., Torrington, Conn., of which Bantam is a subsidiary. Representatives at the exhibit will gladly discuss all questions in connection with bearings.

Baroid Sales Department
National Pigments & Chemical Division of National Lead Co.
Los Angeles, Calif.

123, 124, 125 Oklahoma Building

In attendance

GEORGE L. RATCLIFFE — D. A. SIKES
H. H. FARNHAM — W. L. HEATER
E. C. MEYER — L. W. HUEBEL
D. H. LARSEN — G. E. BLOXSOM
R. W. WILSON — A. A. ROBERTS
G. C. WAHLSTROM — A. C. CRAMER
D. D. VARNELL — T. S. ANDREWS
R. C. MARR

The Baroid Sales Department exhibit will be built around the introduction of a new Wall-Building Tester, designed to be used by the operator in the field for determining the quality of his mud.

The device is essentially a small filter press which operates with pressure. The mud to be tested is placed in the cylinder and the pressure applied by means of water or compressed air, and maintained through a period of 30 minutes to three hours. The mud under pressure is forced through a filter paper placed in the bottom of the tester and the quantity of water passing through the filter paper during the time of the test is noted. When the test is completed the tester is dismantled in a few seconds and the filter cake deposited upon the paper is inspected. This filter cake, together with the amount of water passing through the filter paper during the test, enables the operator to definitely determine the quality of his mud. By adding colloidal material, weight material or chemicals to the mud he may determine whether or not the mud may be improved by such addition. This instrument, for the first time, gives the operator a definite means of controlling the quality of his mud to meet any condition encountered during drilling. Filter cakes and all data with reference to the performance of these testers will be on display.

In addition, the Baroid Sales Department will have the complete line of products available, including Baroid, Aquagel, Baroco, Fibrotex, Stabilite and complete drilling and mud testing equipment.

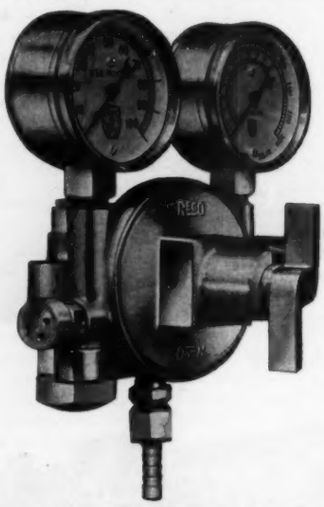
The Bastian-Blessing Co.
Chicago, Ill.

36 and 37 Oklahoma Building

In attendance

E. L. MILLS — E. M. EVLETH
M. J. LA DUE

Exhibiting Rego high pressure oxygen and acetylene discharging manifolds, high pressure regulators, low pressure regulators, welding and cutting torches, and



valves. A production welding operation will be conducted throughout the hours of the show. Each visitor will have an opportunity of estimating the total number of parts welded and the nearest estimate each day will win a prize.

The REGOLATOR: A newly designed two-stage high pressure gas regulator embodying a patented triple cartridge filter with a filtering area 17 times that of the ordinary regulator and a safety release off the first-stage outlet which provides a double margin of safety.

The patented combination of the first- and second-stage results in a perfectly constant flow of gas, regardless of cylinder pressure fluctuations from full to empty. The constant pressure flow of the RegOlator does away with untimely adjustments, thus saving valuable operator time.

The RegOlator accurately controls all high pressure gases and has been adapted for welding, cutting, brazing, metal-spraying and many other requirements of industry.

D. & L. Bearings
Tulsa, Okla.

55 California Building

Beaver Pipe Tools
Warren, Ohio

42 and 43 Oklahoma Building

In attendance

WILLIAM S. ANDREWS — C. W. SHAFER
HARRIS CARLOCK — C. W. SMITH

The exhibit will cover the entire modernized line of Beaver pipe cutting and threading tools, reamers, grooving tools, beveling tools, and pipe machines.

During the past six years the company has brought forth 47 new and improved items in the Beaver line—and practically all of these will be on exhibit.

Benjamin Electric Manufacturing Co.
Des Plaines, Ill.

23, 24 and 25 Refiners and Marketers Building

In attendance

H. R. HEITZMAN — E. E. ELLIOTT

An exhibit and demonstration of the most effective methods of floodlighting service stations and of lighting refineries and other locations for safety and better vision.

For service stations there will be shown the new Duo-Service floodlight with the Saflox lowering attachment as adapted for the new 1,000-watt Bi-post lamp which will give the highest efficiency and life and reduce cost of maintenance.

Other units shown will be: Column-Lites for the intensive lighting of pump island service areas; the Service-Lite for washing racks, greasing lifts and other locations; for the safe and efficient lighting of bulk stations and refineries there will be demonstrated the complete line of explosion proof lighting fixtures with fittings and also a complete series of new vapor proof fixtures known as Benjamin Vapolets.

Bethlehem Steel Co., Inc.
Bethlehem, Pa.

83, 84, 85, 126, 127, 128 Oklahoma Building

In attendance

A. A. WARG — D. C. ROSCOE
J. H. SCANLON — J. E. MOORE
C. C. CRIDER — G. A. TOMPSON
J. J. LOVELL — V. W. BAILEY
WILLIAM CHAPMAN

Sucker rods, a display showing the manufacture of sucker rods from ore to finished product.

Wire rope, a small wire rope machine in actual operation; a motion picture showing the essential operations in the manufacture of wire and wire rope.

Oil country tubular goods.

Drop forgings.

Tool joints.

Pump liners.

A feature of the Bethlehem Steel Co.'s exhibit will be miniature models of high speed rope making machines which go one step further than most co-called working models because they actually work. A miniature strander and closer will make zinc coated strand and 3/32-inch wire rope right under the spectators' eyes.

W. E. Somerville of Coal City, Ill., who developed the high speed rope machines now employed in the Bethlehem Steel Co.'s Williamsport plant, built the models as a spare time hobby back in the early 1930's. To avoid breakdowns or excessive wear in operation he found it necessary to make many of the parts heavier, such as gears and shafts, than called for in a design carried out exactly to the scale of the larger machines of which they are copies.

Just as throughout the years the standard machines of which these are copies have been perfected and improved as accumulated operating experience has suggested, so also from time to time have these models been further perfected and improved. In some instances the improvements that have been incorporated correspond to innovations that have been introduced in the design of standard machines, and in some instances operating difficulties have been solved that are inherent in the diminutiveness of their size or the fine gauge wire they utilize. The wire employed in the strander is of .010-inch diameter or at about the size of wire used in house screens or fly swatters. The slender 3/32-inch rope produced at the exhibits will in effect be of top-notch Bethlehem Purple Strand quality, and will even have the purple strand in it that identifies this brand.

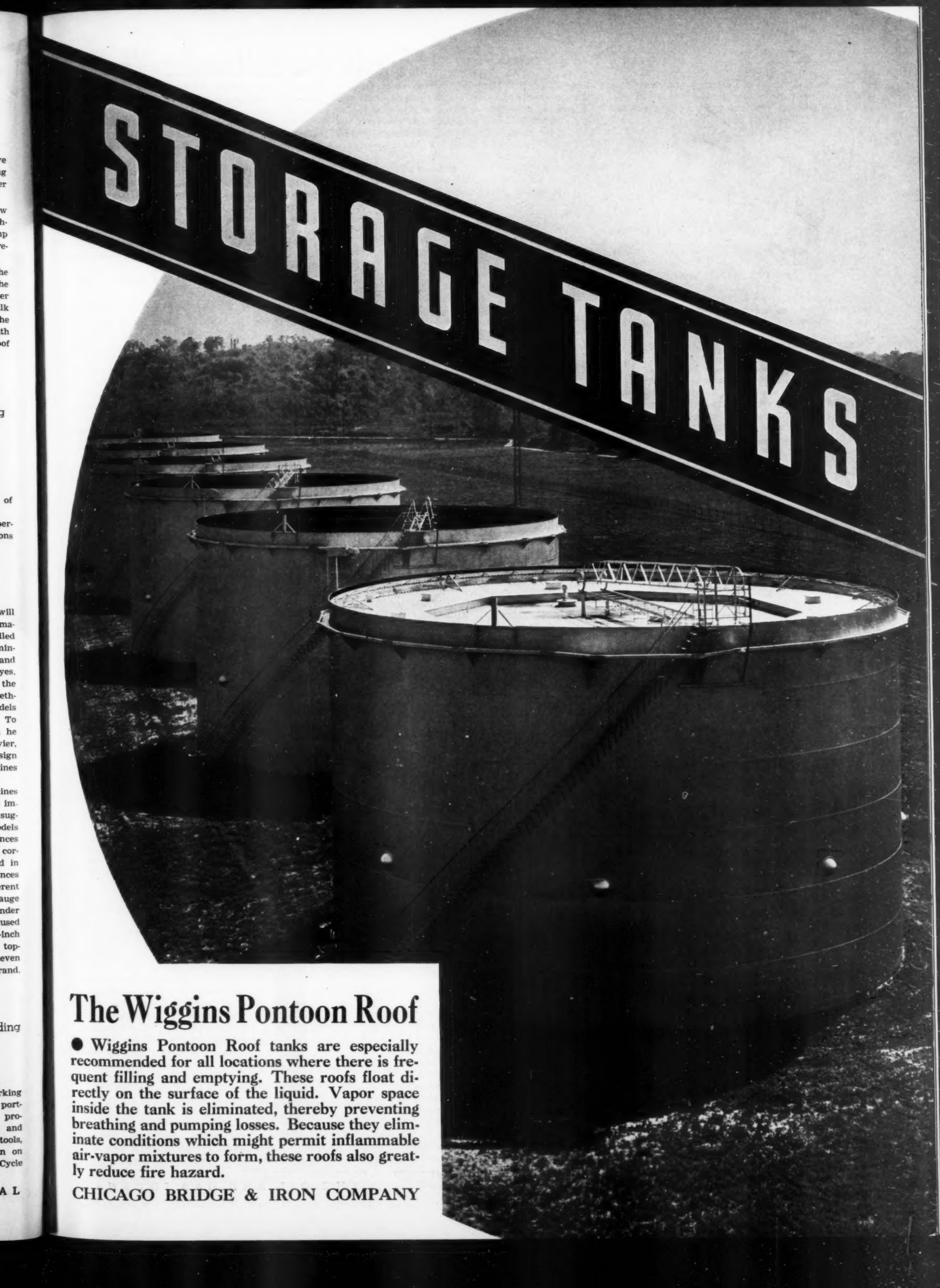
The Black & Decker Mfg. Co.
Towson, Md.

20 and 86 Scientific and Technical Building

In attendance

W. L. POYNTER — E. V. SCHAUB
G. H. TRESLAR — GEORGE HERBST
RALPH COOPER — R. H. SORRELS

The exhibit will consist of a complete working demonstration and display of Black & Decker portable electric tools and accessories, adaptable to production and maintenance in the oil-producing and marketing industry. There will be two groups of tools, namely: (1) Universal motor tools, for operation on standard current supply lines, and (2) High Cycle



The Wiggins Pontoon Roof

● Wiggins Pontoon Roof tanks are especially recommended for all locations where there is frequent filling and emptying. These roofs float directly on the surface of the liquid. Vapor space inside the tank is eliminated, thereby preventing breathing and pumping losses. Because they eliminate conditions which might permit inflammable air-vapor mixtures to form, these roofs also greatly reduce fire hazard.

CHICAGO BRIDGE & IRON COMPANY

tools, designed specifically for production work and operating on three-phase, 180 cycle current only.

The complete range of products will include: Electric drills and their accessories, including drill stands and hole saws; electric screw drivers, nut runners,

Portable Lectro-Shear

and tappers; electric bench grinders, portable grinders and die grinders; electric sanders, surfacers and polishers; electric shears; electric saws, and electric hammers.

The following items are new in the company's line in the past year:

Portable Lectro Shear.—A new and improved design of sheet metal cutting shear with many interesting features of adaptability to varying types and thicknesses of metal and all sorts of cutting problems.

Utility power drills.—An entirely new group of high-power, low-speed service drills especially adapted to maintenance and general drilling work, sizes ⅝-inch, ¾-inch and ⅞-inch.

Portable electric hammers.—Completely new line of electric hammers with improved efficiency, decreased weight for drilling in concrete, brick and stone, for channeling, caulking, gauging and vibrating.

Black, Sivalls & Bryson, Inc.

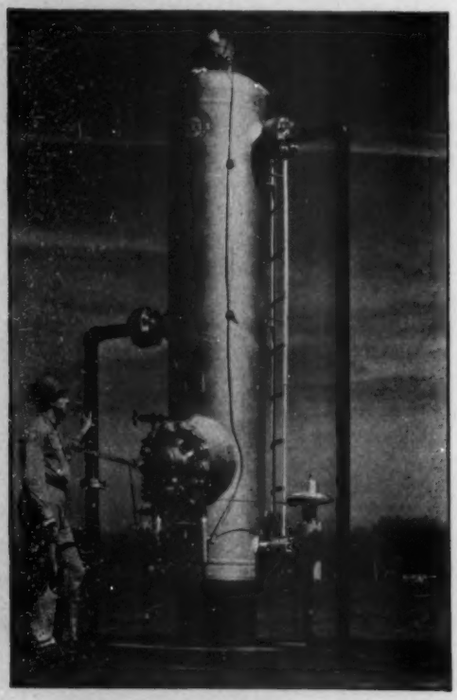
Oklahoma City, Okla.

39, 40, 41, 64, 65 and 66 California Building

In attendance

A. H. BLACK	GLENN SKINNER
G. RAYMOND	A. J. EDWARDS
E. E. CARTER	DONALD TORR
GLENN PARMLEE	J. EDWIN BYERS

The equipment displayed will include a 3,000-pound WP separator, partially fabricated to display and accentuate the extreme thickness of shell (3-inch) and also the method of fabrication as well as internal design.



BS&B 3,000-pound W.P. A.P.I.-A.S.M.E. oil and gas separator

A 1,000-pound WP BS&B A.P.I.-A.S.M.E. oil and gas separator will be connected with a 500-pound working pressure BS&B A.P.I.-A.S.M.E. separator in a stage separation hookup to duplicate any of the numerous field installations of this equipment. Also included in the booth will be a partially erected BS&B tubular heater, a one-half size model of the 8-foot diameter BS&B automatic flow treater with a portion of the shell cut away to show interior design, an operating exhibit of the BS&B automatic blow case, and a working display of six BS&B automatic chemical feeders so connected and operating to display the wide range of pressures against which these automatic chemical feeders will work as well as the wide range of volume they will deliver. Equipment will also be provided for the destruction of the BS&B safety head diaphragms with test gauges connected to permit pressure readings at the time the safety head diaphragms burst.

A rather unique feature will be a 4-foot diameter by 8-foot high model of the BS&B durable wood vapor pressure wood tank which will be used as a telephone booth.

Also exhibited will be an operating display of BS&B pilot operated oil valves, as well as other type valves, including the new line of vapor line vent valves and diaphragm operated gas back-pressure valves. Included also will be the new BS&B temperature controller. This temperature controller is of recent design and is meeting with wide success in the field.

Bovaird Supply Co.

Tulsa, Okla.

Block 1

In attendance

S. J. RAPHEL	A. C. STENSGAARD
W. M. BOVAIRD	F. D. BOVAIRD
D. D. BOVAIRD	R. M. McMAHAN
CLYDE STAPLETON	F. J. ROBBINS
J. B. HUBBARD	C. A. BLACK
R. E. BATCHELOR	W. J. MILLER
C. V. DENNIS, JR.	R. W. ROBBINS
V. P. McANALLY	R. E. WHITTEN
D. C. KENNEDY	GEORGE R. FRENCH
JAMES P. TUNE	F. V. STRONG
R. J. EVANS, JR.	W. H. SHERIN
CHARLES MEYERS	D. M. BRADLEY
D. D. BOWERSOCK	D. C. OSMER
E. B. SNELL	C. E. REYNOLDS
C. W. HENRY	C. C. MOORE

Representing Lamtex Equipment Corp.

B. A. BRENNAN	W. FRED COX
F. T. (JOE) PIPKIN	HERSCHEL LEWIS
R. F. MACKIN	ROY REEDY
HENRY MAPLES	

Representing Dempster Mill Manufacturing Co.
I. N. DOWNS

Representing Fairbanks Co.
GEORGE MacLEAN, JR.

Representing Imperial Belting Co. (O & G belts)
C. H. MONNETTE

Exhibiting a number of the major items which this company distributes. The featured ones will be:

The company's own manufacturing line of surface pumping equipment.

Bovaird grip tubing spiders and Bovaird split slip type tubing elevators.

Pacific and Oil States pumps.

Lamtex and Howe casing pumps. (The Lamtex exhibit will include a motion picture showing various field installations which will show the different manners in which the pump can be made up to suit various well conditions.)

Union automatic gas separators manufactured by Union Gas Systems, Inc., of Independence, Kans., and distributed exclusively by the Bovaird Supply Co. in territories in which they operate.

Dempster water-well working heads, centrifugal pumps, both regular fitted and bronze fitted with stainless steel shaft.

Cushman gas-gasoline engines.

Century electric motors.

Other leading lines of equipment on display are as follows:

S. M. Jones Co.: Jones sucker and pull rods.

Hazard Wire Rope Co.: Lay-set and Nonpareil oil-country wire rope.

Spang Chalfant, Inc.: Tubular products.

National Tube Co.: Tubular products.

Republic Steel Corp.: Tubular products.

Hughes Tool Co.: Tool joints and rock bits.

Reed Roller Bit Co.: Tool joints and rock bits.

Imperial Belting Co.: O & G oil country belting.

Walworth Co.: Valves, fittings, etc.

Fairbanks Co.: Fairbanks valves.

Byron Jackson Co.: New type sucker-rod elevator and new type tubing catcher; tubing and casing tongs.

Republic Rubber Co.: Excello oil country belting and mechanical rubber goods.

Wall Rope Works: Exhibiting line of oil country rope, viz.: Wall pure manila cables, bull ropes, cat lines, spinning lines and plain laid rope.

Caterpillar Tractor Co.: "Caterpillar" diesel power unit.

Waukesha Motor Co.: Waukesha gas-gasoline engines.

Oil Well Improvements Co.: Orbit valves.

Regan Forge & Engineering Co.: Crown blocks, traveling blocks and hooks.

Baroid Sales Co.: Rotary muds, viz.: Aquagel, Baroid, Baroco and Fibrotex.

Larkin Packer Co.: Float equipment.

Baker Oil Tools, Inc.: Float equipment.

Hinderliter Tool Co.: Tool joints and casing head hook-ups.

W. C. Norris, Manufacturer, Inc.: Swedge nipples, bull plugs, etc.

LAMTEX CASING PUMP

Lamtex casing pump assembly

Lamtex casing pumps have been thoroughly tested and proven in hundreds of installations. It is possible to lift a very large volume in wells where the reservoir pressure maintains high fluid levels; also where the fluid levels are low and the porosity of formation permits a sufficient flow of fluid. Lifting costs have been materially reduced by the use of Lamtex and Howe casing pumps.

The Lamtex casing pump requires no tubing (pumps directly to surface from casing), thereby reducing your pumping equipment costs from one half to two thirds. Requires only a rod job to make all changes and replacements.

The casing pump assembly consists of a neoprene packer, which seals off in the casing by means of an expanding head, below which is the conventional working barrel with standing and traveling valve. (Any make of liner or insert type pump may be substituted.)

Installations will be supervised by an experienced production man until the producer's field men become familiar with the equipment.

The Lamtex exhibit will include a motion picture of various field installations showing the different manners in which the pump can be made up to suit various well conditions.

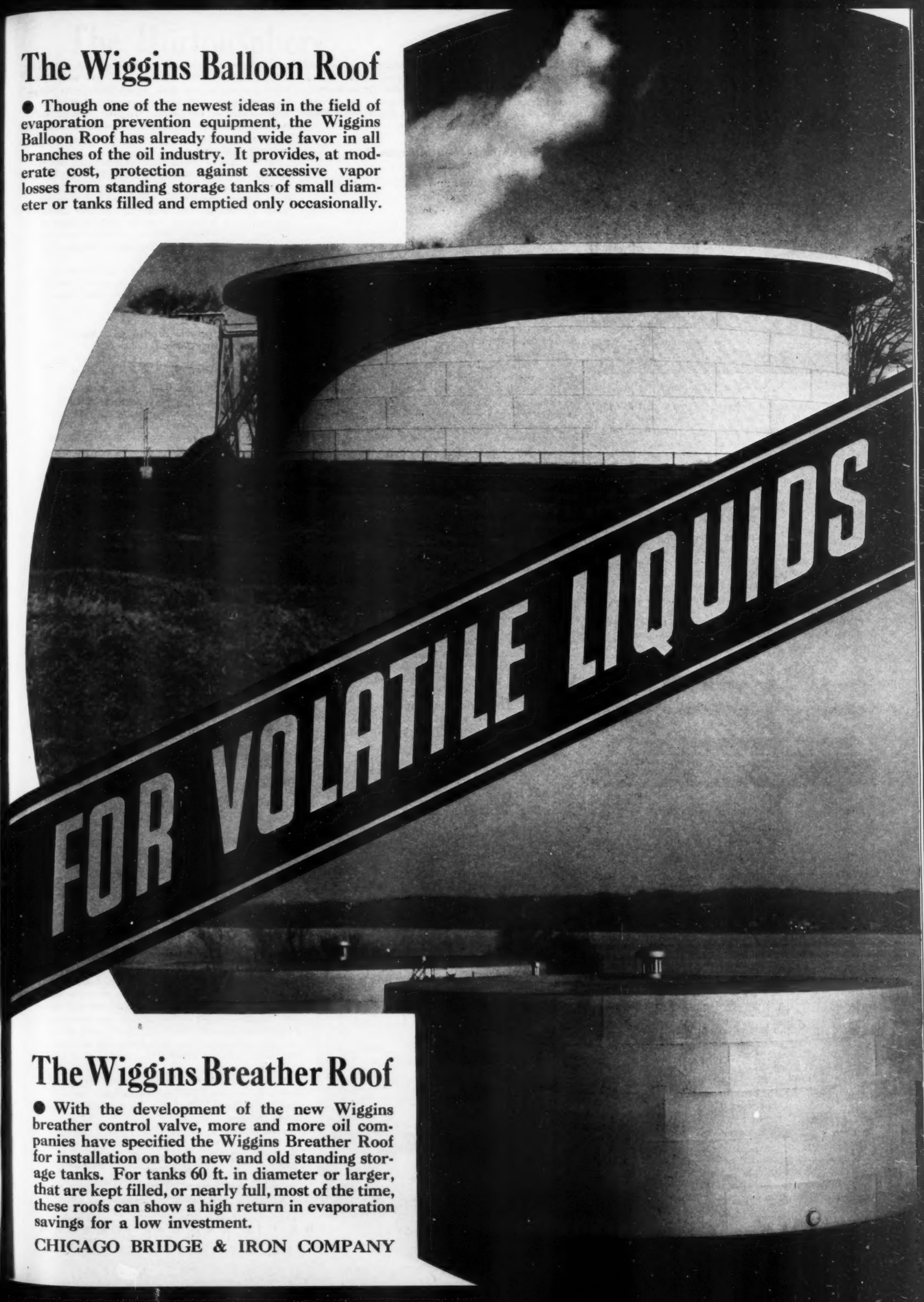
The Bovaird Supply Co. is exclusive distributors for Lamtex casing pumps in Oklahoma and Kansas and maintain field stocks of pumps and parts.

D & L oilless bearings require no oil or grease; are self-cleaning as to sand and dust conditions. Friction is held to a minimum, thus reducing the load, resulting in longer life to the entire equipment. The "safey" factor is an important feature of the bearings, particularly where they are used on steel pumping fronts, units, and beam hangers, as they eliminate the hazards of oiling. The use of these bearings eliminates the ladder and platform necessary for oiling bearings on steel pumping fronts. The saddle bearing uses the knife edge type of hardened inserts. The pull bar bearings use the rocker type of hardened inserts. All inserts are made from alloy steel and tempered to 65° Rockwell hardness. They are easily replaced at such time as they may wear out.

A full line of bearings will be available for pumping jacks, pumping fronts, individual pumping units, swings, upper pitman bearings, polished rod hangers, etc.

The Wiggins Balloon Roof

● Though one of the newest ideas in the field of evaporation prevention equipment, the Wiggins Balloon Roof has already found wide favor in all branches of the oil industry. It provides, at moderate cost, protection against excessive vapor losses from standing storage tanks of small diameter or tanks filled and emptied only occasionally.



The Wiggins Breather Roof

● With the development of the new Wiggins breather control valve, more and more oil companies have specified the Wiggins Breather Roof for installation on both new and old standing storage tanks. For tanks 60 ft. in diameter or larger, that are kept filled, or nearly full, most of the time, these roofs can show a high return in evaporation savings for a low investment.

CHICAGO BRIDGE & IRON COMPANY

Booth-Henning, Inc.
Love Field, Dallas, Tex.

61 Scientific and Technical Building

In attendance

EDWARD F. (DOC) BOOTH HAL P. HENNING
LESLIE H. BOWMAN

Exhibit of aircraft transportation for the private and corporate owner, featuring information and data on the Stinson five-place cabin airplane and the Ryan SC three-place metal cabin airplane. Stinson and Ryan planes

Stinson five-place cabin airplane

will be available for demonstration during the entire exposition. In the booth will be the newest Pratt & Whitney Wasp Junior aircraft engine, a Sperry artificial horizon and Sperry directional gyro actually operating, a Pioneer equipped airplane instrument panel, a Lyoming-Smith controllable propeller, RCA aircraft radio receiver and transmitter.

Braden Winch Co.
Tulsa, Okla.

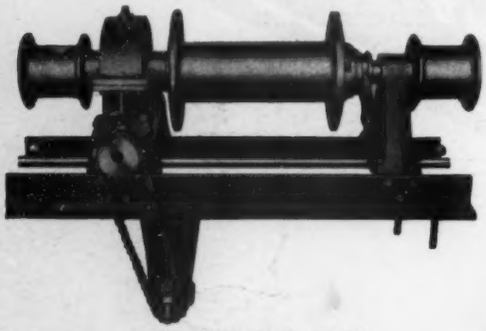
15 Kansas Building

In attendance

T. J. SCHUETZ WARREN EMMONS
PAUL LINDLEY FRED MEDLIN

The Braden company will exhibit its line of truck winches for oil industry use, built in capacities from 6 to 50 tons.

Braden winches to be displayed will be: all-steel Model 91-C, rated at 100,000 lbs.; all-steel Model 41, rated at 40,000 lbs.; new all-steel Model C-4, rated at



Braden Winch, 6 tons capacity

20,000 lbs.; all-steel Model B-2C, rated at 15,000 lbs.; and new Model A-2, rated at 12,000 lbs.

Winch parts also will be shown, including: the Braden improved, adjustable automatic safety brake: and the Braden-Timken improved winch drive through two universal joints and the fixed Braden-Timken bearing countershaft on the winch assembly. This improved drive can be angled to avoid interferences, and raises driving mechanism higher above the ground.

Brauer Machine & Supply Co.
Oklahoma City, Okla.

4 Oklahoma Building

In attendance

WALTER BRAUER H. PAT BRAUER
LEO F. BRAUER J. P. ALEXANDER

Bridgeport Brass Co.
Bridgeport, Conn.

22 and 23 Texas Building

In attendance

ARTHUR AYVAZIAN PHILIP DAVIDSON
R. A. EGELHOFF HERMAN E. STEINKRAUS
E. WAYNE THRALL AUSTIN R. ZENDER

Featuring brass and copper mill products such as the company furnishes to the oil industry: Condenser and heat exchanger tubing in Admiralty aluminum brass and aluminum bronze mixtures, copper tubing and fittings for supply lines, Duronze III sucker-rods used for oil wells that are too corrosive for ferrous metals. It will also exhibit a Texas Ranger made from brass by the late Lowell L. Balcom.

The Bridgeport Machine Co.
Wichita, Kans.

Bridgeport Building and Grounds, Drake Drive

In attendance

L. A. BABB FRED PARKS
I. C. LAWLESS B. V. BROWN
FRED BLAUVELT

The company this year will have the largest and most interesting exhibit of drilling and production machinery it has ever displayed at a petroleum exposition. Practically all of the equipment displayed has been developed or greatly improved during the past two years and after thorough field tests much of it is being shown and demonstrated to the oil fraternity for the first time.

Included in the equipment shown for the first time are: A new and advanced type of Bridgeport mechanical rotary drilling rig complete with power units; the Bridgeport portable cable tool drilling-in and well servicing unit, powered with Caterpillar diesel engines; a brand new Gumbo Buster rotary transmission for variable speeds to the rotary table; a brand new Bridgeport cable tool rig reverse clutch; two new types of Bridgeport utility units for mechanical rigs; several new types of McNeely shale shakers; a brand new type of Gumbo Buster rotary drawworks; the new Gumbo Buster line of traveling and crown blocks; the brand new Gumbo Buster power drive slush pump; the new line of Tico engines; the brand new 375-horsepower C-P diesel rotary drilling engine; and numerous other items of new drilling and production machinery and equipment being displayed at an oil show for the first time.

Most of this equipment will be in operation on the company's spacious grounds surrounding its main building. The Bridgeport Building has been remodeled and will contain still exhibits, working models, etc. Plenty of comfortable chairs and ample facilities have been provided for the comfort and convenience of visitors who will be entertained at frequent intervals by Gage Brewer's Versatile Radio Orchestra, brought to the show by the company on several previous occasions, and a troupe of special entertainers.

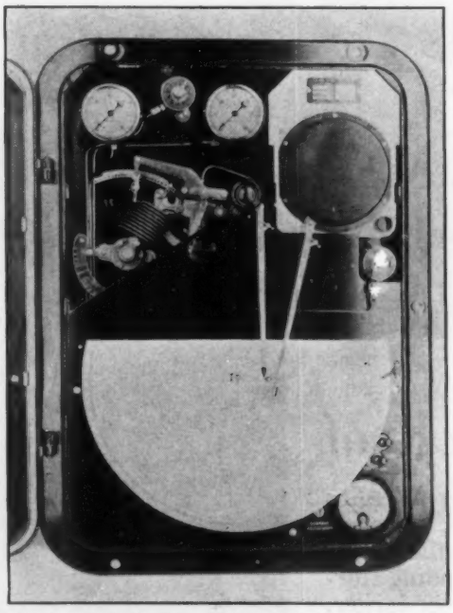
The Bristol Company
Waterbury, Conn.

15 and 16 Scientific and Technical Building

In attendance

H. E. BEANE D. D. AULT
A. A. BLACKMAN R. A. BARNES
H. A. VAN HALA

Bristol's new instruments for automatic and remote control of processes in the petroleum industries will be featured. The operation of a new Reset Free-Vane pneumatic controller is equipped with simple throttling-range and automatic-reset adjustments. A Reset controller for remote regulator control, using Bristol's Metameter System of Telemetering, will also be exhibited. The systems involved will be diagrammatically explained.



Bristol Reset Free-Vane Pyrometer Potentiometer Controller (open view)

A new line of round-chart potentiometer recorders and controllers—known as Bristol's Pyromaster—will be featured along with the Reset controller. One of these instruments will be shown with a transparent cover to indicate the simplicity of the operating mechanism. A schematic diagram will be used to illustrate the principle involved. Another instrument, combining the Reset and Pyromaster features will be on display.

Other instruments to be exhibited include the company's wide-strip potentiometers, absolute pressure recorder, recording system—and—bulb thermometer, recording ammeters and voltmeters.

Ralph N. Brodie Co., Inc
Oakland, Calif.

8 and 9 Refiners and Marketers Building

In attendance

RALPH N. BRODIE D. S. JOHNSON
J. J. KROPP WARNER LEWIS
WALTER BROWN GEORGE RICHARDS
G. F. BURNETT

The complete line of Brodie meters and Brodie Quantrols for tank trucks, bulk plants, refineries and pipe lines will be displayed.

A special feature will be the exhibit of the Brodie pipe line meter Model X-320, the type designed to add materially to the flexibility of a pipe line system. With these meters, streams and commodities of varying characteristics can be rerouted, blended or diverted at will.

No field or working tanks are needed in this connection, yet positive accuracy is assured. These meters enable dispatchers to control closely the vapor pressure and gravity of streams to refineries where there is daily variation of specifications. Because of the control offered by Brodie pipe line meters and the elimination of working tanks, it is possible to check evaporation losses. Technological improvements in refinery equipment require the carrying of higher vapor pressure crudes direct to the refinery. Light ends must be kept under pressure. Installation of Brodie pipe line meters gives a complete, accurate and continuous record of trunk line flow under pressure and makes the detection of line leaks, theft or unauthorized withdrawals quickly and easily possible.

Complete descriptions and operating advantages of Brodie meters for pipe line and refinery use will be available at Booths 8 and 9 in the Refiners and Marketers Building.

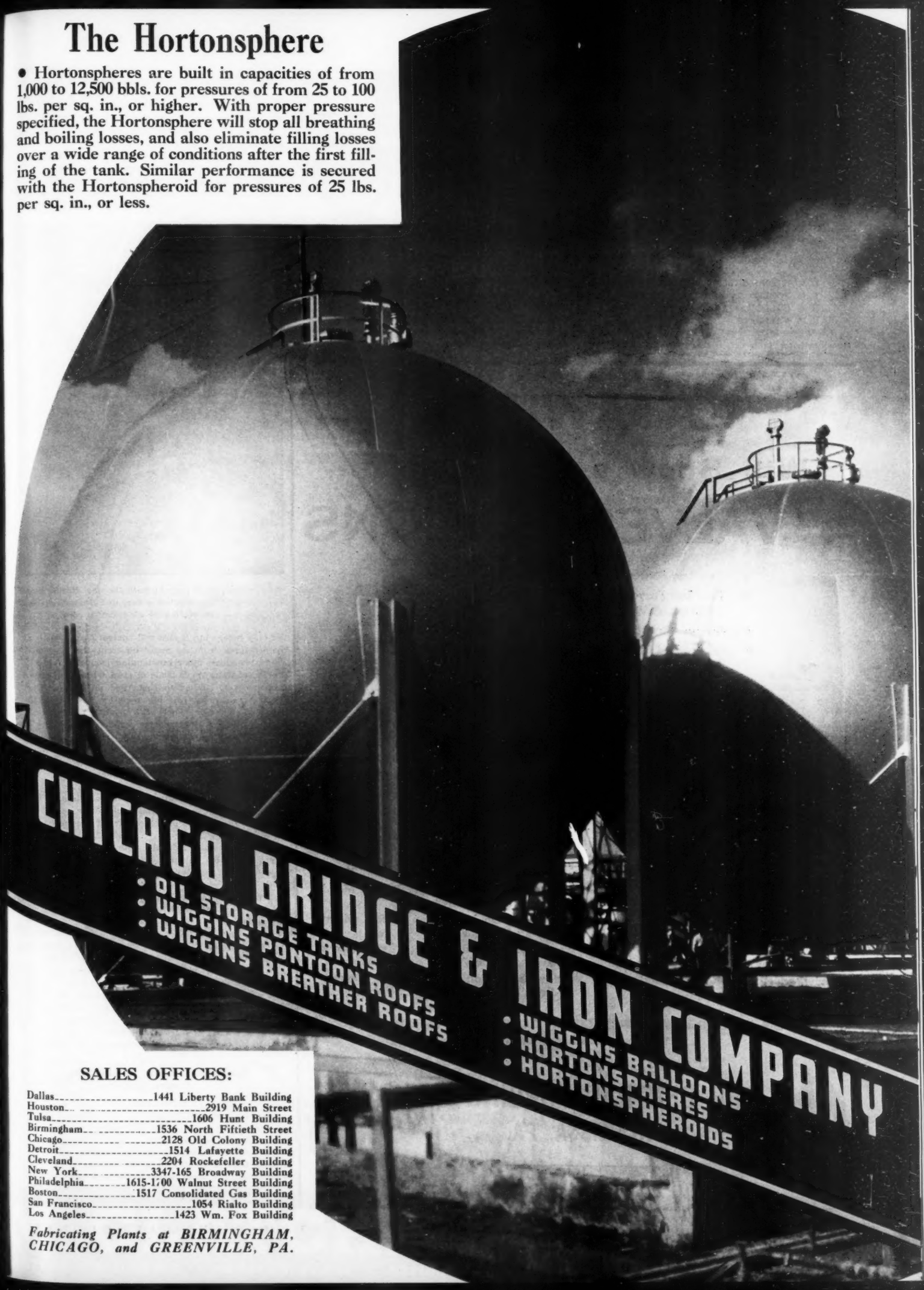
Charles Bruning Co., Inc.
New York

64 Scientific and Technical Building

Exhibiting two pieces of modern equipment for

The Hortonsphere

• Hortonspheres are built in capacities of from 1,000 to 12,500 bbls. for pressures of from 25 to 100 lbs. per sq. in., or higher. With proper pressure specified, the Hortonsphere will stop all breathing and boiling losses, and also eliminate filling losses over a wide range of conditions after the first filling of the tank. Similar performance is secured with the Hortonspheroid for pressures of 25 lbs. per sq. in., or less.



SALES OFFICES:

Dallas	1441 Liberty Bank Building
Houston	2919 Main Street
Tulsa	1606 Hunt Building
Birmingham	1536 North Fiftieth Street
Chicago	2128 Old Colony Building
Detroit	1514 Lafayette Building
Cleveland	2204 Rockefeller Building
New York	3347-165 Broadway Building
Philadelphia	1615-1700 Walnut Street Building
Boston	1517 Consolidated Gas Building
San Francisco	1054 Rialto Building
Los Angeles	1423 Wm. Fox Building

Fabricating Plants at BIRMINGHAM, CHICAGO, and GREENVILLE, PA.

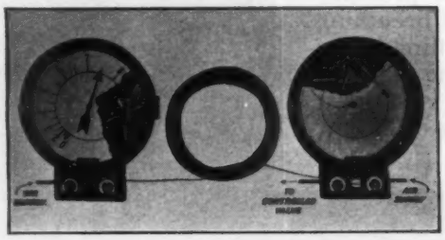
making black and white (black line) prints. With these two machines, the company is demonstrating how prints can be produced directly from the tracing without the use of a negative, and in much shorter time than blue prints. Simple and compact, the two machines can be set up in the corner of a drafting room or office, and the operator can be making his own BW prints in five minutes. No tanks or driers are required since the prints need no washing or drying.

Prints exposed in the Model 4 BW Printer are instantly developed in the Model 149 BW Developing Machine, and are immediately ready for use.

The Brown Instrument Co.
Philadelphia, Pa.
41 and 42 Scientific and Technical Building
In attendance

L. MORTON MORLEY — R. L. MALLORY
F. M. POOLE — E. B. KOHL
B. W. CULLEN — R. W. GROENDYCKE
R. P. WALKER — E. H. THOMPSON

The Brown Instrument Co., a division of Minneapolis-Honeywell Regulator Co., is demonstrating a complete line of indicating, recording and automatic control instruments for refineries and natural gasoline plants. The panel board display includes several types of air-



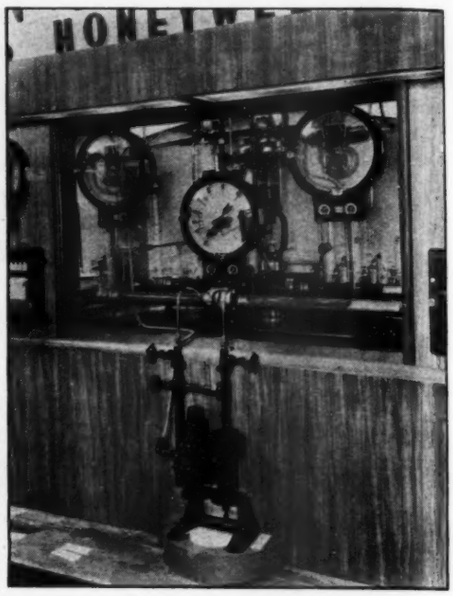
Pneumatic remote transmission system

operated controllers for automatically regulating temperature, pressures, flows and liquid levels.

Featured is a working demonstration showing an indicating transmitter, eqnipped with the Brown pneumatic remote transmission system by which temperature, pressure, flow and liquid level measurements may be indicated, recorded and controlled remotely. This system is particularly applicable for use in hazardous atmospheres where the use of electricity is to be avoided. The Brown combined electric and air-operated flow and liquid level system for remote transmission will also be in operation with the Brown pneumatic remote transmission system

Other Brown instruments mounted on the centralized control panel board in operation includes:

Brown multiple recording and controlling potentiometer pyrometer: Where it is desirable to record several temperatures on one chart, this instrument will



Showing control of flow by both the new Brown pneumatic remote transmission system and Brown electrical system combined with air-operated control

not only record but it also will control from two to six temperatures from as many different thermocouples. There are three other outstanding exclusive features: (1) The chart drum is made of steel with a vulcanized rubber cover, similar to that used on a typewriter. (2) It is the only printing recorder using specially hardened steel print wheel with machine cut numerals. Both of these features assure maximum legibility of chart records. (3) The plus (+) sign is used for recording temperatures. It has special significance, namely, the horizontal line is the time coordinate and the vertical line of the plus sign identifies the temperature.

Brown Air-o-Line controller: For coordinating temperatures, pressures, flows and liquid levels.

Brown flow meters in both electrical and mechanical types.

Brown manually balanced potentiometer: An indicating manually balanced potentiometer in a large switch cabinet for supervisory temperature measurements.

Brown multiple recording resistance thermometer: This can be supplied to produce up to six records in distinctive colors. It is the most satisfactory method of multiple recording. The record lines in different colors are easy to follow. A dial on the switch is printed in colors corresponding with each colored record line.

Whatever the refinery control problem may be, Brown has the instruments which will solve it automatically. For the ordinary control problem, the standard line of Brown electric flow meters, electric potentiometers, electric and air-operated thermometers, pressure gauges and liquid level controllers will be in operation in conjunction with the foregoing instruments.

Buckeye Traction Ditcher Co.
Findlay, Ohio
Block 102

The company will exhibit its new Model 49 Buckeye ditcher, the Buckeye Model 12 utility service ditcher and the Clipper excavator.

The Buckeye Model 49 ditcher cutting widths of ditching from 22 to 40 inches, with depths to 8½ feet, is the company's latest design in big pipe line ditchers. Transmission drives for all operations eliminate the older type of open drive, making the most efficient use

CATAWISSA

Will Show a New Line of

4" VALVES & UNIONS

4"—Two Lug Forged Steel Lug Nut Union
4"—Four Lug Forged Steel Lug Nut Union
3,000 lbs. O.W.G., 650 lbs. W.S.P.
4"—Screwed End Union Relax Metal Swing Check Valve
4"—Flange End Union Relax Metal Swing Check Valve
400 lbs. O.W.G., 250 lbs. W.S.P.

Exhibiting:

Booth 29 Oklahoma Bldg.

and

Oil Well Supply Company Bldg.

●

CATAWISSA
The Original Hot Forged Steel Unions

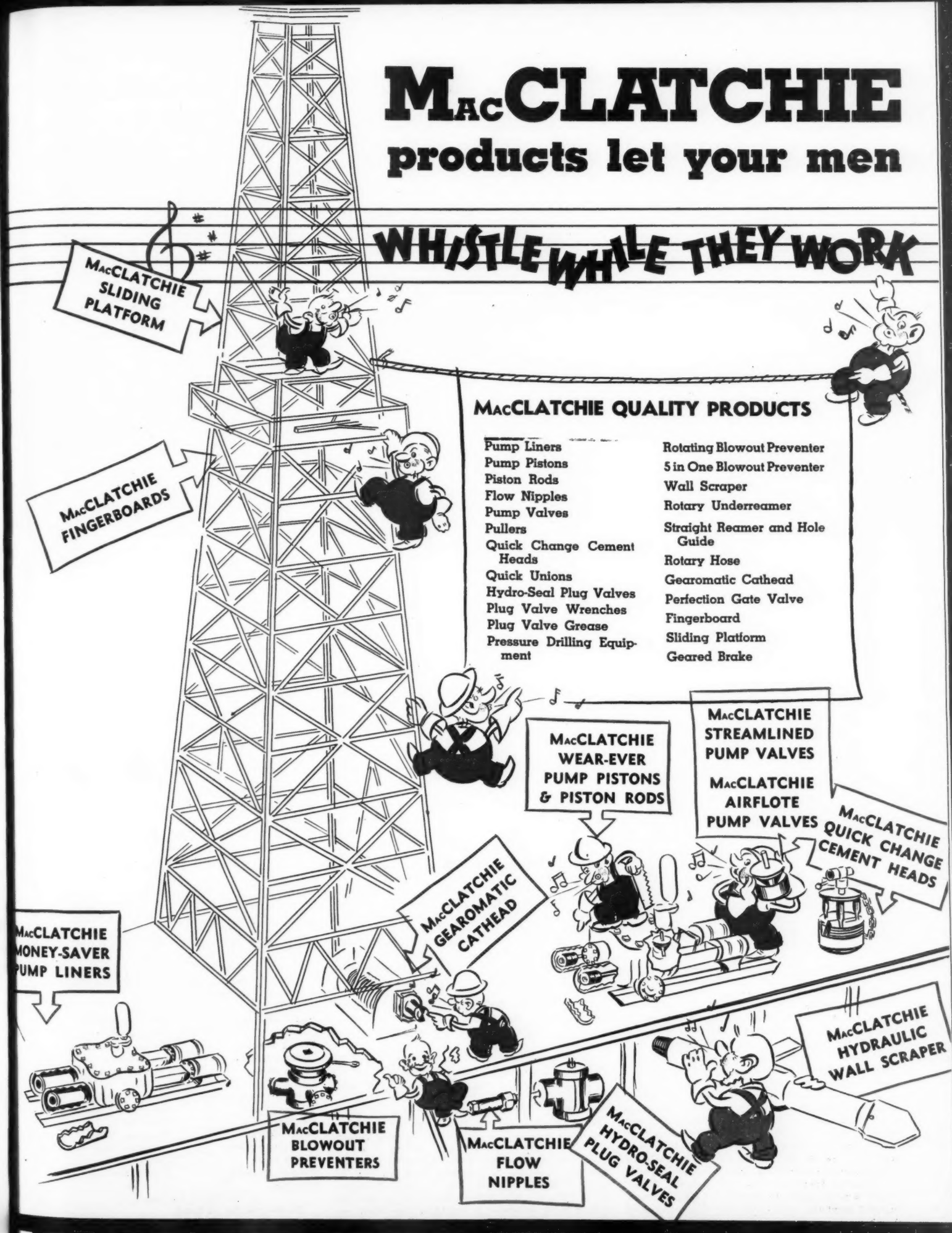
Catawissa Forged Steel Standard Unions
Catawissa Forged Steel Double Extra Heavy Unions
Catawissa Forged Steel Lug Nut Unions
Catawissa Forged Steel Special Unions
Catawissa Union Relax Metal Swing Check Valves.
Catawissa Single Union Relax Metal Swing Check Valves.
Catawissa Double Union Relax Metal Swing Check Valves
Catawissa Union Relax Metal Extra Heavy Swing Check Valves
Catawissa Union Forged Steel Double Extra Heavy Swing Check Valves

Mid-Continent distributors OIL WELL SUPPLY CO. Stocked by leading supply jobbers in all other oil fields.

THE CENTRAL FORGING CO.
CATAWISSA, PA.

MacCLATCHIE
products let your men

WHISTLE WHILE THEY WORK

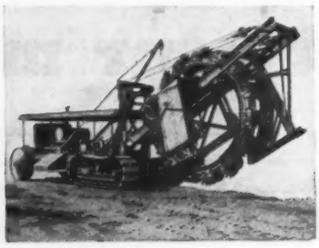


MacCLATCHIE MANUFACTURING COMPANY

COMPTON, CALIFORNIA ★ HOUSTON, TEXAS ★ EXPORT: GEORGE R. WOODS, 17 BATTERY PLACE, NEW YORK, N.

of power and simplifying the servicing of the machines. All transmissions have heat-treated cut gears, in oil-tight cases.

For all its rugged strength and power and despite the size of trench it digs, this new Buckeye is handled



Model 49 Ditcher

with remarkable ease. Numerous other features of modern design make it well worth any man's time to look over the new Model 49 ditcher.

The Buckeye Model 12 utility ditcher is considerably smaller than the Model 49. But on the jobs that come within its range of trench, 14½ to 24 inches wide and 5½ feet deep, this fast little ditcher is a giant in ability.

The other machine being displayed by Buckeye is the Clipper, a convertible excavator that may be had equipped for shovel, dragline, crane, clamshell, trench hoe and pile driver. A feature of this machine that is attracting a great deal of attention is the new (Mevac) metered vacuum control, with all operations individually controlled by easy working valve levers that respond to a light touch of the fingers. The Buckeye Clipper is built in ½-, ⅝-, and ¾-yard sizes.

Buchwald-Morrison Co.
Dallas, Tex.

1 California Building

Bucyrus-Erie Company
South Milwaukee, Wis.

Block 4

In attendance

H. M. JAMESON	H. A. TITUS
J. E. MARSON	HAROLD BAUGH
JOE WALDINGER	L. B. BIRCKHEAD
W. K. FAWCETT	F. O. WYSE

Bucyrus-Erie bullgrader

The exhibit will feature a Bucyrus-Erie 10-B three-eighths yard drag shovel. Variable front-end equipment, also displayed in conjunction with this small excavating unit, will include the standard three-eighths yard shovel and a 28-foot dragline boom with a three-eighths yard type AU Red Arch dragline bucket.

Another major item to be exhibited will be a Bucyrus-Erie bullgrader mounted on a TD-40 International TracTracTor.

Also on exhibit will be the new and revolutionary Bucyrus-Armstrong cable-tool bit with detachable point; the material on display will include one 20-inch bit, one 9-inch bit, one detachable point only, and one welding fixture used in connection with these tools. With these new bits, the points are bolted on and easily detached, eliminating the time and labor ordinarily used in "breaking" joints and heavy bit changing. Points, instead of being forged, are electrically welded and hard-surfaced, providing 30 to 50 per cent faster penetration than hand-dressed bits.

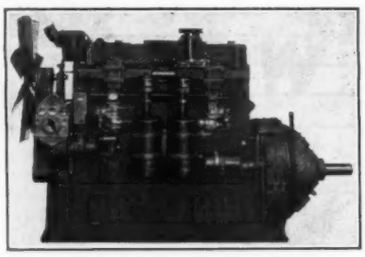
The Buda Company
Harvey, Ill.

Buda Co. Building, Lot M

In Attendance

L. M. VILES	F. E. PLACE
J. S. DEMPESY	R. K. MANGAN
J. C. BASEHEART	R. H. HEBERLING
F. GORMLEY	W. L. SOMNER

In addition, representatives of the company's oil field distributors, Budga Engine Service of Tulsa, Inc., Buda Engine & Equipment Co., and Production Equip-



ment Co. will also be in attendance. R. K. Mangan, vice president in charge of sales, announces Buda will have the largest exhibit in its history. The company recently erected its own permanent building on Lot M.

The company will exhibit two large drilling engines —the diesel Model 6-LD-1742 and the gas-gasoline model P-1879. These engines will be in operation during the show. An unusual and unique feature of the exhibit is that the large diesel drilling engine (6-LD-1742) will be equipped with a Buda-Lanova diesel Model 4-DT-196 starting engine.

The Model P-1879 gas-gasoline engine was added to the Buda line several months ago. This is another of the many models of Buda engines designed specifically for oil field service. It has a 6¾-inch bore, 8¾-inch stroke and 1,879-cubic-inch displacement. This is an over-head valve engine, and cylinder heads are cast in pairs. The 3¾-inch crankshaft has seven wide, "precision" type main bearings, and the connecting rods are 17¾ inches, center to center. Like on all other Buda engines, exhaust valve seats are removable. Lubrication is by full force-feed system to all moving parts, and the lubricating oil supply is carried in the box-type cast-iron base on which the engine is mounted.

Another Buda engine being exhibited for the first time is the Model 6-LD-691 diesel. This engine has 4¾-inch bore, 6½-inch stroke and displacement of 691 cubic inches. Cylinder heads, which are easily removable, are cast in triplets. The crankshaft is 3½ inches in diameter and has seven wide, "precision" type main bearings.

The other two engines to be exhibited by the Buda Co. are its Models JK-4 and YR-425 pumping engines.

For the first time, the company is exhibiting a wide range of jacks, including a complete line of all-purpose jacks especially designed for oil field service, journal jacks, and standard speed jacks. In all, nine models will be displayed. An improved pole pulling jack will be included.

The Model 2215-H all-purpose jack will be the most outstanding unit in the exhibit. This is an automatic lowering jack that is lightweight, rugged and has exceptional rise for its height. One of the most important features is that the lowering device is an improved, simplified, one-piece unit, and the automatic control is located at the top of the jack, in full vision of the operator. Another important feature is that the load may be raised or lowered on three sides of jack without interference. The hinge base permits operation at many angles.

E. D. Bullard Company
San Francisco, Calif.

51 California Building

In attendance

T. H. FELDS R. W. HANKINS

New developments of special interest include:

Willson Approved Respirators: The No. 200 Rotiform respirator has the U. S. Bureau of Mines approval No. 2118 for protection against type "A" dusts. The long-life Rotiform felt filter employed in this device is so designed that an effective filtering surface of more than 30 square inches is confined in a relatively small area, assuring adequate filtering efficiency with low resistance to breathing. Also approved by the U. S. Bureau of Mines is the No. 100 bag respirator. A device weighing only 3 ounces is low in price and with a lower resistance to breathing than other respirators.

Beryllium non-sparking tools: This includes a complete line of all types of tools manufactured from non-sparking beryllium metal. This metal has been heat treated and hardened to assure satisfactory service and a safety edge on edged tools.

Bullard positive pressure blower mask: This is a device that blows fresh air into men working in confined areas in which there is either oxygen deficiency or harmful concentrations of injurious fumes. Where the standard hose type mask blows air into the wearer by means of a fan, the Bullard positive pressure blower mask forces air in at a regulated volume by means of a positive pressure blower.

R. & B. automatic gas detector and alarm: This is a new device designed primarily to detect and give either visual or audible alarm in case of toxic accumulation of hydrogen sulfide. The device is particularly adaptable to refineries where hydrogen sulfide is frequently found in connection with cracking processes. The device draws samples from various exposed sources and at periodic intervals tests these samples for hydrogen sulfide concentrations and reports the degree of concentration either in the form of a dial indicator or as a continuous strip recorder.

Bunting Brass & Bronze Co.
Toledo, Ohio

133 Kansas Building

In attendance

G. H. ADAMS J. F. ROBERTS

Will show various types of bearings used in oil field equipment. This will include special sizes made to company's blue prints and stock items carried at its warehouses throughout the country.

Butler Manufacturing Company
Kansas City, Mo.

Block P

In attendance

R. W. DOWNES	W. E. BOTZ
LOUIS BROWN	G. A. BURNS
ED KOPP	G. C. SPEAKMAN

C. C. CROUCH

Displaying a 12 by 14 oil field building; 2½-foot by 10-foot Drane separator; 775-gallon gasoline truck tank; 250-bbl. bolted steel tank.

The latest improvements and conveniences in these different products will be a part of the exhibit includ-

ing all modern features that can be secured in products of this type.

Byron Jackson Co.
Los Angeles, Calif.

24 to 28 Oklahoma Building

In attendance

(a) Oil Tool Division

FRANK CHAMPION	C. F. VINCENT
O. W. MORGAN, JR.	B. A. HILLIARD
D. O. PUGH	H. E. GRAU
R. T. TODD	MARSHALL MOORE

(b) Pump Division

LYNN SAWYER	E. W. BAKER
J. J. O"CONNOR, JR.	J. PROGRESS

Equipment on display will be:

(a) Oil Tool Division

Cable tool bits	Drill pipe elevators
Disc bits	Rotary elevators
Tubing bleeders	Production elevators
Casing elevators	Rod elevators
Casing hooks	Drilling, tubing and rod hooks
Casing tongs	
Surestop tubing catchers	Rotary tool joints
Cat line grips	Shortype "C" catchers
Weldless links	Safety joints
Orifice fittings	Perfection links
Slush pump pistons	Perfection underreamers
Tubing tongs	Rotary tongs
Slush pump valves	Triplex hooks — 100, 150 and 300 ton
Tong dies	

(b) Pump Division

Double case hot oil pump

Submersible deep well turbine pump

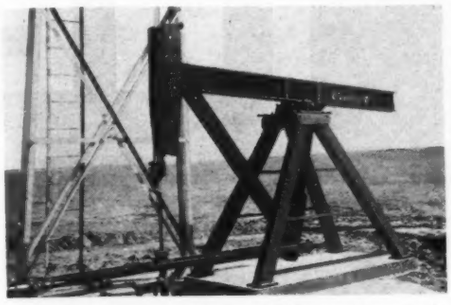
Cabot Shops, Inc.
Pampa, Tex.

West End of Pampa Avenue

In attendance

A. SWANSON — R. A. BAKER
P. O. GAUT — H. E. McCRAY
R. G. ALLEN — E. L. GREER, SR.

The entire line of Cabot surface equipment is being displayed for the first time. Featured in the exhibit will be a 16,000-pound double crank pumping unit, which is representative of one of the six types manufactured. A 16,000-pound double hook Penedulum Stroke Post with knock-offs. This equipment features particularly safety for the operator, as the hook-on and hook-off are made without the operator's safety being endan-



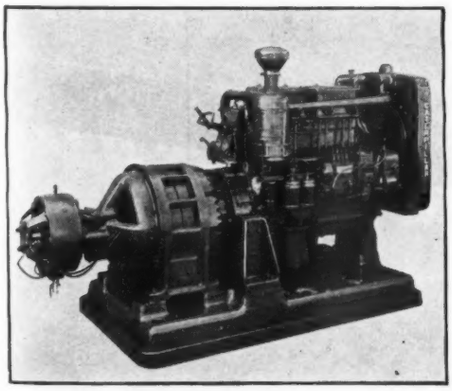
gered by any moving parts. A 16,000-pound Underpull pump jack, which is representative of three types of Cabot Underpull pump jacks. These jacks feature low bearing pressures, oil bath bearings, equipped with oil and dust seals. All joints are arc welded and interlocked, eliminating eccentric loading on members. Extra clearance around all moving parts provide safety for pumper and accessibility for servicing. A 16,000-pound 30°–105° adjustable swing will also be shown. This swing is applicable for use on practically all rod line connections, and due to design and construction has high salvage value and can be moved from one lease or field to another.

Caterpillar Tractor Co.
Peoria, Ill

Block E, near center of Exposition grounds

Almost the complete line of diesel tractors and industrial engines, equipped for pipe line and general oil field work will be displayed, with a large force of sales executives in attendance at the show.

A unique feature of the exhibit will be its lighting. An 80 horsepower diesel electric generating set will be installed to power the lighting for the entire exhibit. Other diesel engines on display will be the D17000 of 160 maximum brake horsepower; two D11000 engines of 100 horsepower each; a D6600, 60-horsepower engine;



80-horsepower diesel-electric generating set

two D4600 engines with 66 horsepower each, and a D4400 engine of 44 horsepower, the latter two engines being equipped with enclosed clutches of the latest design, suited for oil well requirements.

Of its diesel tractor line, "Caterpillar" will show its D7 of 61 drawbar horsepower, equipped with a Hyster winch and a LaPlant-Choate roadbuilder; a D6, 44 horsepower, equipped with a LeTourneau bulldozer and scraper; a D4 of 35 horsepower, shown with a LaPlant-Choate scraper (4 yards); and Killefer ditcher.

Interesting cutaways and parts will include the flame thrower which is an operating exhibit graphically illustrating the diesel fuel pump and injection assembly. A cutaway of a Hyster winch will also be shown.

The Cavins Company
Long Beach, Calif.

127 and 128 Kansas Building

In attendance

PAUL CAVINS — G. W. MOORE
JOHN MULCAHY — TOM SHARP

Products to be exhibited:

The Cavins automatic hydraulic bailer—This is the standard Cavins bailer with the following improvements and attachments: Vacuum release sub — To equalize pressure within and without bailer tubes, making it possible to pull tool free should it become stuck. Knuckle joint—Ball and socket joint, sealed with leather packing rings, to allow tool to pass around sharp bends in crooked wells. Deflection from straight line approximately 3 feet in 20. Automatic by-pass valve—For use in conjunction with load tube of larger diameter than suction chamber tube when bailer is run in pipe or well with very limited clearance between inside diameter of pipe and outside diameter of load tubes. Spring parts and other parts normally under tension are galvanized against destructive forces in wells where acids of sulfuric nature are present.

Cavins screen washer—Consists of mandrel with slip actuating device, fluid by-pass valves, and a rubber packer, attached to lower end of Cavins bailer.

This device provides a false bottom against which the fluid column of the well is dropped when the slips are set, and the suction chamber valve opened by rais-

The Cavins perforation washer is a combination of the Cavins Up-Trip and Pack-Off shoe

ing tool slightly in the pipe and setting back down. The fluid column is dropped against the rubber packer when suction chamber valve is opened, exerting a very effective force against the screen openings in the immediate vicinity of the rubber packer.

Cavins perforation washer—A combination of the Cavins bailer with "up-trip" and "pack-off shoe" devices, run on the same line as bailer alone.

The up-trip makes possible the loading of the tool at any desired point in well. The pack-off shoe restricts loading of tool to that point in the perforations which is between the two opposed pack-off rubbers. When suction chamber valve is opened by raising tool, the fluid column, rushing to occupy the vacuum, is directed outwardly through the perforations, around pack-off rubbers and into load chamber, carrying with it the contaminating material from perforations and annular space behind pipe.

Cavins sand pumps—Mid-Continent type. New features are: Pressure release by-pass to equalize pressures above and below a bridge likely to be formed within the load tube; and also to equalize pressures within and without load tube. Special heat-treated steel quick dumping bottom with two-way flapper valve, and spring release locking mechanism, made in both chisel and flat type bottoms. Swivel rope socket, attached to end of line running down into working barrel of sand pump, and remains intact when assembled or withdrawn for running with tools. Synthetic rubber plunger, assuring exceptionally long life and providing an excellent seal through fluid expansion design.

California type—A general production and cleanout sand pump, so designed as to employ gases in solution in the detritus to effect quick self-dumping of the load when brought to the surface. Enables many more trips per hour than ordinary cleanout tools. Working parts arranged at top of tool eliminate sanding up troubles in mechanism.

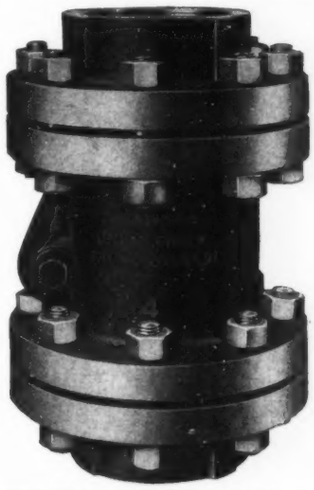
The Central Forging Co.
Catawissa, Pa.

29 Oklahoma Building

In attendance

A. C. LEWIS — H. BLAIN LACY
JOHN A. HILL

The company announces a new 4-inch swing check valve which will be shown for the first time at the exposition. This new valve may be furnished either



with flanged ends or screwed union ends. Its design permits its use in either vertical or horizontal position and it is recommended for 250 pounds working pressure.

Since the last Oil Show in Tulsa, the company has also developed a new lug nut union made in sizes from three-quarters inch to 4 inches, inclusive. The nut on this union permits the use of either a wrench or a hammer, or both.

The 4-inch size may be furnished with two or four lugs. The nut is made of forged steel and will stand the severe conditions prevailing in the oil country.

Chain Belt Company
Milwaukee, Wis.

70 and 71 Texas Building

In attendance

BRINTON WELSER — MAURICE JEWETT
RUSSELL DAVIS — WALTER SNAVELY
WILLIAM PITTS

Exhibit will consist of a display of samples of the various sizes and types of Rex chains and sprockets which the company manufactures for oil field use. Included among these chains will be Rex Chabelco, Rex Deepwell, Rex Champion, Rex Universal, and Rex Roller Chain. Also on display will be pictures of products working in the oil fields.

One of the featured chains will be Rex Champion No. 3 and No. 4. These chains correspond to the A.P.I. 3 and the A.P.I. 4 sizes and are made with the same principles of alloy steels, highly finished bearing surfaces and precision manufacture found in the well-known Rex Deepwell chain which will also be featured. Rex Champion is a heavier chain with a higher ultimate strength and is recommended for extremely hard and deep drilling where excessive loads in the final stages of the deepest holes are the main factors. This idea will be featured in connection with the Continental Oil Co.'s KCL-A2 "the deepest well in the world" on which Rex Champion chain was used. Rex Champion No. 3 has an ultimate strength of 75,000 pounds and the No. 4 an ultimate strength of 170,000 pounds.

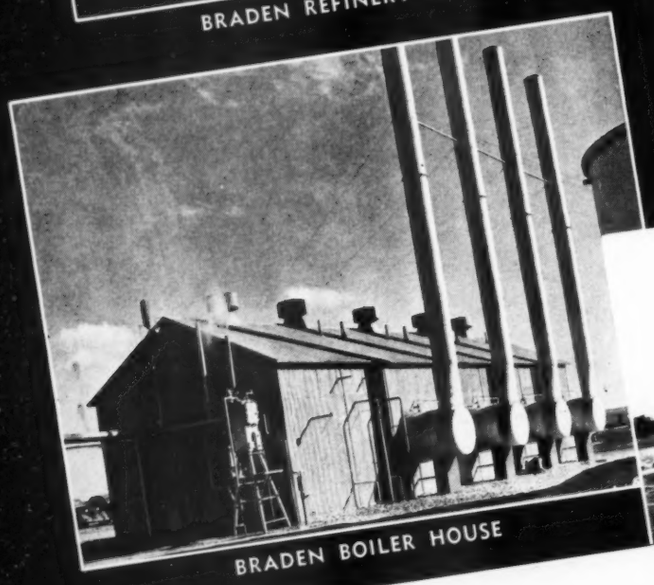
Rex Deepwell chain, the chain for the wider working range in all types of drilling, will also be shown. It has the highly finished surfaces and precision manufacture to give it the ability to stand up under

(Continued on Page 200)

BRADEN WEL
THE

BRADEN REFINERY BUILDING

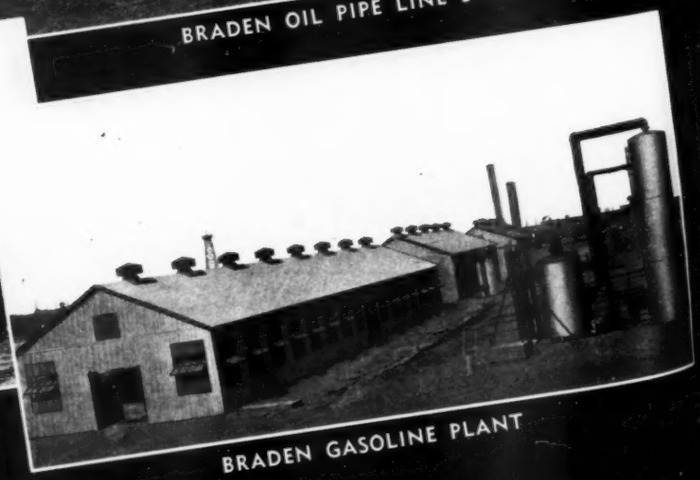
BRADEN ENGINE AND BELT HOUSE



BRADEN BOILER HOUSE

BRADEN OIL PIPE LINE STATION

BRADEN FIELD WAREHOUSE



BRADEN GASOLINE PLANT

COMES YOU TO EXPOSITION

MOST of the buildings of the Petroleum Exposition were fabricated and erected by BRADEN.

BRADEN pioneered sectional steel buildings in the Midcontinent Oil Industry — has been building superior fabricated and sectional steel buildings in Tulsa for 15 years. Today the BRADEN product is used and favorably known throughout the Midcontinent, Gulf Coast and Rocky Mountain oil districts.

BRADEN Sectional Steel Buildings offer the advantages of complete standardization, unequalled speed of erection, complete suitability to the purposes for which designed, maximum durability, 100% portability and salvage.

Our experienced organization is at your service at all times to help you find the economical solution of any industrial building problem.

Designers — Fabricators — Erectors

BRADEN STEEL CORPORATION

1007 E. Admiral Tulsa, Oklahoma

Gulf Coast Representative: Brance-Krachy Co., Inc.,
411 Navigation Blvd., Houston, Texas

BRADEN

W. R. Braden, President

L. J. True, Treasurer

J. C. Pharr, Asst. Treas.

Jack Hendricks, Sales Engineer

J. G. Mathews, Tulsa Salesman

Glen King, Texas Salesman

THE EXPOSITION IS HOUSED IN STEEL BUILDINGS

modern high-speed drilling. It is especially useful on unitized drawworks for the many fields where drilling may range from easy to hard.

Rex Universal No. 3125 which is made with the same precision and polished bearing surfaces which mark all Rex oil field chains will also be shown. This chain is recommended for tough drilling at higher speeds and does not run on the same sprockets as the A.P.I. 3 and 4 chains. Its ultimate strength for the single-strand is 115,000 pounds, and 230,000 pounds for the double-strand.

Rex Roller chain will also be displayed in single, double, triple, and quadruple strands for various types of drilling and drive units in the oil field.

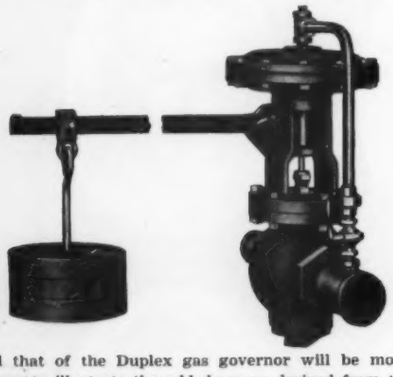
The Chaplin-Fulton Manufacturing Co.
Pittsburgh, Pa.

40 Scientific and Technical Building

In attendance

ALEX M. BROOKS — J. P. KELLY
W. R. SHIPERLY

A general cross-section of the many types of "Fulton" regulators designed for the oil and gas industry will be exhibited. A large number of these will be "cut-aways"



and that of the Duplex gas governor will be motor driven to illustrate the added power derived from two diaphragms.

The latest design of pressure reducing regulator of "Bonnet" construction will also be shown. In the past only regulators in sizes 6-inch and up have been of the Bonnet type but this construction can now be incorporated in all sizes from 1-inch. The 2-inch size is illustrated.

The remote control type of "Vigilant" liquid level controller will also be on display in "cut-away" form as well as the latest design of motor or diaphragm valve.

Various regulator parts will include the high pressure soft seat inside valve, the purpose of which is to eliminate freezing of reducing regulators.

The Chapman Valve Manufacturing Co.
Indian Orchard (Springfield), Mass.

24, 25 and 26 Texas Building

In attendance

G. L. GRIFFIN — V. T. MALCOLM
G. E. FOX — M. C. JACOBS
R. F. MAHER — J. E. KOCH

The exhibit will include a comprehensive display of valves for the production, refining, and transportation of oil. Steel valves for all pressures and temperatures will be displayed.

Also complete metallurgical information on various types of steel and alloys recommended for standard and special service in the petroleum industry.

Chase Brass & Copper Co.
Waterbury, Conn.

134 and 135 Texas Building

In attendance

N. W. MITCHELL — J. F. DUMSER
A. F. SHELDON

The exhibit will feature four kinds of Chase condenser and heat exchanger tube for use in oil refinery work—Antimonial Admiralty, Red Brass, Copper (Cupro) Nickel, and Admiralty.

Another interesting feature will be a display of tensile test specimens before and after a period of testing under as nearly as possible actual service conditions either in the water box of an operating condenser or in the vapor stream. Determinations of tensile strength and elongation, made before and after the tests, will be given.

Chase will also show polished Olympic Bronze pump rods which have proved far superior to polished steel rods under similar conditions in oil wells. Chase Olympic Bronze rods have considerably longer life and can be used as they come from the mill. They do not require polishing as do steel rods.

The Chase exhibit will also include a large assortment and many sizes of Chase Olympic Bronze bolts and nuts which are used on heat exchangers, filter drums, cooling towers, and other equipment where high tensile strength and corrosion resistance are necessary.

Chevrolet Motor Division
General Motors Corporation
Detroit, Mich.

Block T

Chicago Bridge & Iron Co.
Chicago, Ill.

86 and 125 Texas Building

In attendance

D. A. LEACH — H. B. MURPHEY
J. R. DONALDSON — D. E. LARSON

The exhibit will consist of two large panels of photomurals depicting our various products. These photomurals will include one or more illustrations of the following: Storage tanks for crude oil, gasoline, etc.; Wiggins Pontoon Roofs for the prevention of evaporation and fire on flat bottom storage tanks. Wiggins Breather Roofs for standing storage tanks of 60-foot diameter and larger. Wiggins Balloon Roofs for standing storage tanks 60 feet in diameter and smaller or for tanks which are worked only occasionally. Wiggins Balloon System with both piston type and steel type balloons for the storage of vapor from a group of tanks. The Hortonspheroid for the storage of natural gasoline, motor fuel gasoline and other volatile products designed for pressures from 1 to 25 pounds per square inch. The Hortonsphere for the storage of liquids or gases at pressures from 20 to 100 pounds per square inch or more.

In addition to the photomurals, there will be shown general views of a large number of various tank installations on an automatic Baloptican.

Chicago Rawhide Manufacturing Co.
Oil Seal Division
Detroit, Mich.

37-38-67 California Building

In attendance

Industrial Sales & Engineering Co.
J. H. DRAPIER — W. R. DAVIS

Exhibiting Perfect Oil Seal for lubricant retention—dirt exclusion and complete bearing protection. Seals will be exhibited equipped with Sirvene packing members as well as leather packing members. Sirvene is a synthetic oil-proof, water-proof, heat-proof rubber compound. Also applications of this material to other packing products will be shown.

Other mechanical leather products manufactured by Chicago Rawhide will be exhibited including Rawhide mallets and hammers, leather packings, leather dust covers and boots.

Chiksan Oil Tool Co., Ltd.
Fullerton, Calif.

26 and 27 Refiners Building

In attendance

DEAN LOVE — EARLE R. ATKINS
HERB E. MALAND — CARL F. GAST
DALE L. PRENTICE — R. J. EICHE

Exhibiting:
All steel heavy duty rotary hose
Heavy duty swing joints
All steel cement joints
Low pressure swing joints
Dock risers
Circulating head
Mud mixing gun
Loading rack joints

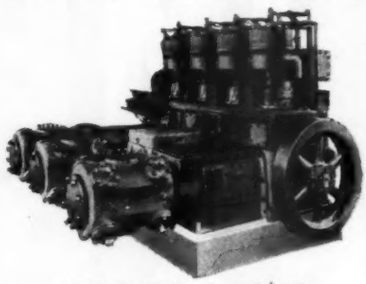
Clark Bros. Company
Olean, N. Y.

Clark Building, Block U

In attendance

C. P. CLARK — J. B. O'CONNOR
D. K. HUTCHCRAFT — FRED HAYES
J. N. MacKENDRICK — G. W. PROBST
WILLIAM ROEVER

Will exhibit, in actual operation, the 400-horsepower, 4-cylinder size of the Clark Super-2-cycle right-angle compressor. This compressor was first exhibited to the public at the 1936 Petroleum Exposition, in the 3-cylinder, 300-horsepower size. It is now being made in 2-, 3-, 4-, 5-, and 6-cylinder sizes, ranging from



Clark 4-cylinder Super-2-Angle

200 to 600 horsepower. This compressor combines the simplicity of the Clark Super-2-cycle horizontal compressor with the advantages of the Clark vertical gas engine.

Will also exhibit:

New type Clark Bobcat and Clark Bobkitten vertical pumping engines.

Clark Triplex high-pressure pump.

Clark Electrical Supply Company
Tulsa, Okla.

49 Refiners and Marketers Building

In attendance

J. P. CLARK — R. A. ALMOND

Display will consist of Westinghouse Mazda lamps, Appleton Electric Co. products such as Unilets, regular vapor-proof, Pass and Seymour and Arrow Electric Co. lines of wiring devices, Red Cap spotlights, and Goodrich floodlights and reflectors.

The Cleveland Trencher Company
Cleveland, Ohio

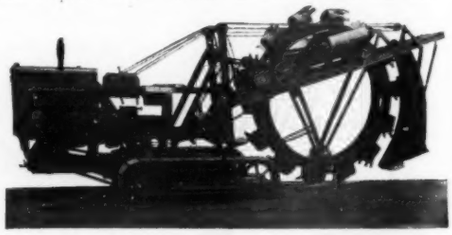
Block P

In attendance

V. S. PENOTE — J. A. PENOTE
A. L. ASQUE — ROY OVERS
A. A. BUSSE — W. A. FISHER

Will exhibit its complete line of ditch and trench excavators, wheel and ladder type, for all kinds of pipe and conduit lines, also "Cleveland" trench tampers, backfillers, barricades, pipe "lowering-in" horses and special trailers.

Since 1921 when A. J. Penote, founder of the company, designed and built his first trenching machine for use on one of his own jobs, the company has been engaged exclusively in the manufacturing of trenching and ditching equipment for oil, gas, electric, telephone



and telegraph and water companies, municipal, state and federal government work and contractors of such work. The company was the pioneer in the manufacture of the small, compact wheel type trencher.

The "Cleveland" line today includes the following machines: The Cleveland Baby Digger Model 95; the Pioneer small trencher for city or suburban work, where limited working room is available. Digs from 10½ to 23½ inches wide and 5½ feet deep, weighing approximately 9,500 pounds and with an overall width of 57½ inches.

The "Cleveland" Model 110, the logical machine for oil, gasoline and small diameter natural gas lines equally usable and efficient for short loop and field lines or gruelling main line work. Also does a very effective safe job of stripping pipe lines for taking up and reconditioning. Digs from 14½ to 23½ inches wide and 5½ feet deep. Weighs less than 11,000 pounds, length 22½ feet and width over all 71 inches. Digging speeds from 6 inches to 33 feet per minute, road speed 3 miles per hour.

"Cleveland" Model 125—Same type of machine as

(Continued on Page 201)

Model 110 and designed and built for same class of work except that it is a slightly larger machine for larger diameter pipe. Digs from 16 to 32 inches wide and 5½ feet deep. Weighs less than 12,500 pounds, length overall 23½ feet, and width overall, 71 inches.

"Cleveland" Pioneer, a compact, powerful ladder type trencher designed to handle trenches up to 10 feet deep and 21 to 30 inches wide. Equipped with distinctive pivot conveyor, an exclusive feature which affords complete control over the disposal of excavated material.

"Cleveland" tamper backfiller and Cleveland backfiller, compact, mobile machines usable almost anywhere assuring maximum economy and satisfaction for the replacing of earth in excavations.

"Cleveland" trailers, especially designed and built for "Cleveland" machines. Eliminating loading and unloading expense, assuring drastic reductions of transportation costs and greatly increasing the utility of the machines.

Constantly improved since their introduction over 17 years ago, Cleveland machines are supreme in the quality of materials used. Every part is engineered to provide maximum strength and resistance to wear, at the same time needless bulk and weight are eliminated. As a result "Clevelands" are most flexible, easy to handle, easy to transport; costly delays and unproductive time are cut to a minimum and long life assured.

Coffing Hoist Co.
Danville, Ill.

13 California Building

In attendance

J. R. COFFING — RAY DOAN

The company will exhibit its new Safety-Pull ratchet lever hoist, new Power Master spur gear gravity lowering hoist, new electric hoist, and load binders.

The Columbian Steel Tank Co.
Kansas City, Mo.

South Half of Block 102

In attendance

A. A. KRAMER — J. M. KRAMER
T. C. SKEEN — W. M. GADBERRY
W. F. PAGEL — F. L. MURDOCK
E. A. BROMLEY — L. A. TAYLOR
WILLIAM GRAVES — T. E. WARD

An installation of two "Cop-Nic" bolted steel tanks, complete with stairway and walkway, will be of interest to those concerned with the problem of storing sour crude. "Cop-Nic" bolted steel tanks were developed and are produced exclusively by Columbian. The "Cop-Nic" steel with its special galvanized coating is highly resistant to corrosive action, and ideal for storing sour crude.

A new idea of lease houses will be found in the Columbian prefabricated metal cottage on display. This four-room lease house is of sectional construction which permits it to be knocked down and re-erected on another site with almost 100 per cent salvage.

The new Columbian butane gas system will also be shown. This tank, which is for the storage of liquefied petroleum gases, such as butane, bears the A.S.M.E. label and meets every requirement of the National Board of Fire Underwriters. This is the system which has brought all the conveniences of natural gas to farmers and others living beyond the gas mains. The system actually amounts to an individual gas plant which is remarkably efficient and economical.

Compressed Industrial Gases, Inc.
Tulsa, Okla.

96, 97 and 98 Oklahoma Building

In attendance

L. E. LIPPINCOTT — FRANK CUSSON
A. G. COATES — JACK MARTIN
MAX STEVENS

Displaying a complete line of the company's Hollup Sureweld electrodes, and an actual demonstration of various types of electric arc welding, especially showing the Sureweld pipe line electrode, which may be used for all position general purpose arc welding as well. In addition, demonstrations will consist of stainless steel arc welding and many other types. A large revolving pyramid table will display the complete types of Hollup Sureweld electrodes and actual welded test specimens required on arc welding for test purposes.

Actual demonstrations will be made with our new Gas-O-Graph oxyacetylene cutting machine, which operates by an electrical motor at great speed and because of its versatility may be used in various types of oxy-acetylene cutting, such as straight line cutting, circle cutting and various types of shape cutting.

The CIG pipe cutting and beveling machine will be of interest in the fabrication of welded pipe line. Because of the design, a saving in time and operation may be effected by its use.

Continental Chemical Company
Sand Springs, Okla.

39 Scientific and Technical Building

In attendance

DR. F. T. GARDNER — E. W. HOLDEN
GEO. H. OERTEL

Exhibiting one No. 10 Continental Zeolite water softener, Simplex type; one Continental gas sweetener and purifier. This latter unit is a new device, recently developed by engineers of the Continental Chemical Company for removal of gaseous or entrained impurities from gases. There will also be a display of Continental boiler water treatments and other chemicals used in industrial water treating and softening. A Continental portable Zeolite water softener, No. 3-C, will be exhibited in the space occupied by the agency for their distribution.

Continental Motors Corp.
Detroit, Mich.

95, 96, 121 and 122 Kansas Building

In attendance

B. F. TOBIN, JR. — F. F. SCHWILK
ERIC ZACHAU — LYLE STRINGHAM

Exhibit will consist of heavy duty gasoline, kerosene, fuel oil burning and natural gas burning engines in four and six cylinder types "L" head and overhead valve, both open type and enclosed type power units with power take-off and clutch, ranging from small engines suitable for pipe line work and standby service to the heavy duty units.

It will also exhibit two engine generator sets, one 5 KW and one 8.3 KVA, and a 2,000-watt light plant and two Tiny Tim portable light plants and battery chargers ranging from 150 to 300 watts, 6, 12 and 32 volt.

The Continental Supply Co.
Dallas, Tex.

Continental Supply Co. Building, Block 6

In Attendance

W. J. MORRIS — F. M. MAYER
F. I. BRINEGAR — C. H. MEYER
N. A. ENDICOTT — CHARLES W. KING
A. J. OLSON — J. C. SLONNEGER
H. E. SPENCER — C. N. SWANSON
F. N. THRAILKILL — E. N. WOOD
DWIGHT A. DAVIS — M. D. SMITH
W. V. MOORE — R. D. MANNIX
J. D. CHAPMAN — R. L. COLLIER
J. H. BERRY — T. D. COLLINS
F. J. LAFITTE — W. D. CRAIG
R. A. BREWER

Under the auspices of the Continental Supply Co., Dallas, Tex., a wide range of drilling and production equipment produced by affiliated manufacturing companies will be displayed in the company's new building and on the adjacent property.

Of especial interest will be the newly developed KEM electro-mechanical rotary drilling rig. Such firms as Fairbanks, Morse & Co., Gardner-Denver Co., and Emsco Derrick & Equipment Co. have collaborated with Continental engineers to produce the KEM rig and make it an outstanding unit which undoubtedly will be sure to attract wide attention among exhibition visitors. Other associated firms will have auxiliary pieces of equipment on exhibit in connection with the KEM rig, showing their use in actual operation.

Another cooperative effort will be that of the Falk Corp., the Climax Engineering Co. and Fairbanks, Morse & Co. in displaying the latest in geared pumping equipment with specially designed oil well prime movers.

The description of the major items of equipment to be displayed by each of the affiliated companies follows:

Broderick & Bascom Rope Co.
St. Louis, Mo.

In Attendance

J. K. BRODERICK — FRED ZIMMERMAN
M. R. GAYLE — D. E. DICKEY
E. E. DEACON — R. A. HILL
L. R. SAUNDERS

Samples of wire rope used especially in the oil industry will be shown. The display will feature samples that show the preformed construction of Broderick & Bascom wire line, for use as drilling lines, sand lines, rod lines and winch lines. In addition, factory methods will be explained.

The Champion Machine & Forging Co.
Cleveland, Ohio

In attendance

J. F. CONNELLY — F. W. SUHR

The Champion Coupling, including the newly devised coupling for plain-end pipe will be exhibited by this concern affiliated with Champion. Extremely useful for hook-up purposes around wells, this coupling is made up and broken down quickly, a convenience for general oil country installations. Champion is also well known for its forgings, and will exhibit some of the most intricate forgings produced in this country today.

Climax Engineering Co.
Clinton, Iowa

In attendance

E. F. DEACON — E. D. WEST
T. C. KEELING — R. H. KERR
H. A. HANSON

Production men will be interested in the Climax G-4-C oil well pumping engine designed to give unusual stability and remarkable freedom from vibration. The engine is not one adapted from ordinary industrial service, but has been specifically fitted to do the job of oil well pumping. Its box base construction provides a large oil sump as well as structural stability.

D & B Pump & Supply Co.
Los Angeles, Calif.

In attendance

E. E. STEVENSON — L. C. SCOTT
R. M. BOLIEAU

Assemblies of numerous D & B pumps with cutaway parts to explain their operation will be featured by D & B. This company makes a specialty of producing pumping equipment to meet situations that are difficult to handle. Various types of D & B pumps to overcome unusual problems will be exhibited and explained. In addition, a general line of pumping equipment including both surface and subsurface accessories as well as sucker rods and pull rods will be shown. D & B is renowned for the alloy steel used in manufacturing this equipment; A.P.I. standards are rigidly adhered to, so that parts will be interchangeable. Production men from every field will find some operation of the D & B exhibit that will interest him.

Emsco Derrick & Equipment Co.
Los Angeles, Calif.

In attendance

W. D. DAVIDSON — P. D. BROWNE
G. W. WALTON — S. W. WEBSTER

The Type 18-AR 136-foot Emsco derrick, mounted on a substructure, will be an identifying feature of the entire Continental exhibit. Built around this derrick and in actual operation will be the KEM electro-mechanical rig. The Emsco A-506 sheave ball-bearing crown block, and Type A-94-50 five-sheave ball-bearing traveling block, will be installed together with the new Type "F" swivel, DEL-54 Emsco drawworks, and JS-20½ rotary machines; 4½ x 40-foot up-set drilling stem, and Type "G" motor reduction gear will also be exhibited.

Fairbanks, Morse & Co.
Beloit, Wis.

In attendance

P. C. BROOKS — A. E. ASHCROFT
H. J. RENKEN — F. P. GRUTZNER
F. D. RATCLIFFE — H. D. GOBBLE

Two six-cylinder F-M Model 35-E-10 diesel rotary drilling engines will be exhibited in connection with the KEM electro-mechanical drilling rig. These engines have a long oil country record of reliable performance and are exhibited at this year's show with numerous improvements. Both oil filters and air filters have been used as standard equipment. The engines are exceptionally rigid and have advantages of slow speed operation, yet have lightweight diesel accelerating characteristics. The visitor will be impressed with their basic and extreme simplicity.

The model 34-AC three-cylinder 6 x 8½ oil well pumping engine will be exhibited on a 20KBT-106CH Continental-Falk geared pumping unit. Thoroughly field proven for oil well pumping service, the essential moving parts of this engine are identical with those of a proved design in long industrial use. Its outstanding advantages include heavy pistons for dissipating

heat; heavy crankshafts, perfectly counterbalanced, and heavy flywheels to provide unusually smooth operation. The governor design permits variation of the degree of sensitivity, a highly desirable quality in pumping service.

Probably no engine in the oil country is better known than the Fairbanks-Morse "Z" engine, in new dress with force-feed oiling system. A built-in circulating pump insures normal temperatures and cool operating conditions at all times. The extra heavy flywheels give the smoothest operation possible. This old engine is expected to be a new favorite at the exposition. It will be mounted on a 10HTD-50CD geared pumping unit.

Farrar & Trefts, Inc.

Buffalo, N. Y.

In attendance

JOHN C. TREFTS S. MENSONIDES

The ultra-modern 139-hp. 300 and 350-pound working pressure F.&T. boiler will attract visitors with its completely fusion-welded construction, extra long fire box and low dome. Featuring fusion-welded seams that are X-rayed before shipment from the factory, F.&T. offers an exclusive product. X-ray photographs showing boiler seams will also be displayed.

The Falk Corp.

Milwaukee, Wis.

In attendance

E. P. CONNELL W. L. SCHNEIDER
T. F. SCANNELL W. P. SCHMITTER
M. A. CARPENTER

An assortment of gears, including the 106, 70CD and 50CD will be shown with Continental-Falk pumping units in actual operation. The use of herringbone gears was pioneered in this country by Falk. The Falk trough system of lubrication insures an unfailing supply of clean lubricant to all bearings, while special oil retainers prevent any leakage of oil and seals the lubricant against the admission of dirt and dust particles.

The 80CGP geared power to be displayed, incorporates the combined ideas of leading petroleum engineers and the field experience of these men over a number of years. The bearings automatically provide for compensation of temperature change without adjustment. A submerged oil pump eliminates any necessity of priming, and gives positive pressure lubrication. The crank throw is interchangeable in the field without the necessity of special tools.

Gardner-Denver Co.

Quincy, Ill.

In attendance

H. C. MYERS E. F. SCHAEFER
R. J. MacFARLAND R. J. BAUER
G. J. MacFADDEN R. L. McLAIN
J. A. VAN DOORN R. C. HANSON

Among the new items of steam equipment to be featured by this concern will be the 14 x 14 new twin drilling engine which offers unusual steam economy. Operating on compressed air for exhibition purposes, its working parts will be clearly displayed. Other items will be the 7¾ duplex power slush pump V-belt driven by a 9½ x 8 vertical steam engine. This unit will also be operated by compressed air. A 7½ x 20 duplex power slush pump will be exhibited in connection with the KEM electro-mechanical rig. Gardner-Denver steam equipment has been widely known wherever steam drilling has been practiced; the new products will be of interest to those who have been familiar with Gardner-Denver's long history.

General Electric Co.

Schenectady, N. Y.

In attendance

R. L. SMALLMAN R. T. SHIELS
GEORGE W. PROUT A. L. JONES
E. F. PATTERSON R. G. SMITH
F. B. HATHWAY RALPH RANDALL
L. T. BLAISDELL J. J. HUETHER
W. G. TAYLOR M. M. BURGESS
I. T. HOCKADAY GEORGE W. CURRY
C. A. MAAS

The KEM electro-mechanical rig features the use of the General Electric 330-kw. D.C. generator with complete voltage control system. In addition, a 425-hp. General Electric rotary drilling motor will be exhibited in connection with this rig. These two G-E items constitute the latest idea in electrical rotary drilling equipment. Capable of high overloads without overheating, their electrical refinements have made them outstanding.

The Mechanical Rubber Co.

Passaic, N. J.

In attendance

B. F. RUETHER A. M. LANGLEY
L. M. DEUTSCH W. E. BELCHER
B. F. FRANKLIN

Belting especially designed for oil country use will be the feature of the Mechanical Rubber Co.'s display. Special cord-ply construction permits correct adjustment of plies to the required weight and strength imposed, with minimum elongation under enormous shock loads.

Super Rough Rider rotary hose, manufactured to resist abrasion due to its multiple plies of strong cotton duck, flat braided steel wire and durable live rubber will be exhibited both in the Continental Building and in the outside exhibit in connection with the KEM electro-mechanical rig.

New Bedford Cordage Co.

New Bedford, Mass.

In attendance

GEORGE W. HAYWOOD H. W. DAVIS

New Bedford has been in the business of producing quality cordage for more than 100 years. Samples of the highest grade selected manila fibre chosen from the hemp markets of the world will be featured by this concern. Spinning lines, catlines, drilling cables and bull ropes will be displayed. New Bedford has been an exclusive distributor to Continental since the organization in 1912.

Westcott Valve Co.

East St. Louis, Ill.

In attendance

A. V. WADSWORTH W. B. CHAPMAN
W. C. WADSWORTH JOHN WALKER
A. A. TINCH

Christmastree hookups, drilling valves, gate valves: in short, almost any type of valve for use in the oil industry will be presented by the Westcott Valve Co.

(Continued on Page 206)

Gatke QUALITY

What A Record!

Meet Charles Fisher, of Oilton, Okla., who has used his *GATKE-equipped* Franks Winch for 4½ years without repair or shutdown—*he hasn't even had the brakes relined!*

All Franks Winches are equipped at the factory with GATKE CUSTOM-BILT MOULDED BRAKE BLOCKS because of their *undisputed greater performance, dependability and longer life.*

When you use GATKE BRAKE BLOCKS, you *speed up* rod and tubing jobs. Your wells are *back on production sooner.*

Solving YOUR Brake and Friction problems is OUR Business. Write for complete details.

GATKE CORPORATION
228 N. La Salle Street Chicago, Illinois

★ ★ ★ ★ ★ ★ **IF all the REPUBLIC ELECTRIC WELD CASING AND TUBING**

(Grades C & D) made to date were coupled together in a single string, it would go all the way through the earth and leave more than 8,000,000 feet projecting on the other side.

That's a lot of casing and tubing—made in less than 7 years. It had to be good to make this record—for oil producers can't afford to take risks. Republic Steel Corporation, Cleveland, Ohio.

REPUBLIC STEEL

BERGER MANUFACTURING DIVISION • STEEL AND TUBES, INC. • TRUSCON STEEL COMPANY
UNION DRAWN STEEL DIVISION — NILES STEEL PRODUCTS DIVISION

REPUBLIC STEEL

FOR THE OIL AND GAS INDUSTRY

FENCE POSTS AND ASSEMBLIES
UPSON BOLTS, NUTS, RIVETS AND OTHER HEADED AND THREADED ITEMS
WIRE NAILS AND STAPLES
BERLOY SHELVING, BINS AND LOCKERS
NILES STEEL SHIPPING CONTAINERS
ELECTRUNITE STEELTUBES (ELECTRICAL CONDUIT)
TRUSCON STANDARD STEEL BUILDINGS

When writing Republic Steel Corporation for further information, please address Department OG.

All Westcott products are produced in keeping with the highest metallurgical practice, and both steel and iron body valves represent the perfection of the steel and iron makers art. Westcott is the only exclusive manufacturer of gate valves for oil and gas service.

The Youngstown Sheet & Tube Co.

Youngstown, Ohio

In attendance

W. E. WATSON	E. P. COREY
G. W. CHRISTOPHER	J. C. SIEGLE
M. S. CURTIS	J. E. MOUTHE
A. A. CHAMBERS	W. C. MAIN
C. E. MARKELL	W. G. KINGELIN
O. A. KOCHER	ORA C. COX
T. BRUCE COX	T. W. OWINGS

The parent company of the Continental Supply Co., the Youngstown Sheet & Tube Co., will exhibit samples of casing, tubing, drill pipe and line pipe in their booth in the Continental Building. A special feature of the tubular display will be Hydril drill pipe and Youngstown Speed-tite casing, both pioneered and developed by Youngstown engineers. Samples of new Staybolt drill pipe, which avoids the concentration of drill stem vibration in incomplete threads will show how "twist-offs" can be prevented. The newly developed Yoloy tubing which has high yield and tensile strength, provides exceptional resistance to corrosion.

The manufacture of seamless pipe will be completely explained in the model of Youngstown's seamless mill which shows each operation in the manufacturing process.

The Youngstown Steel Products Co.

Chicago, Ill.

In attendance

ORA C. COX T. BRUCE COX

This subsidiary of the Youngstown Sheet & Tube Co. will display their standard handle bar union, well known in the oil country for its ability to be made up and broken down countless times; and in addition, a new idea—a tongue and groove union. This fitting uses a special gasket fitted into a groove. A tongue machined to precision standards fits accurately into the groove seating on the gasket, providing perfect pressure seal. The new Handle Bar Check Union will create much interest as it has in experimental installations in the oil country. Cut-away views of this spring check will show how positive sealing and full flow are accomplished.

C. Lee Cook Manufacturing Co.

Louisville, Ky.

51 and 52 Texas Building

In attendance

W. WOOBANK F. BLACK

ROBERT E. KIRN

The exhibit will display a full line of COOK'S GRAPHITIC IRON piston rings including plain rings, COOKTITE sealing rings, oil control rings and segmental compressor rings. There will also be on display COOKMET (plastic bronze) and other non-ferrous compressor rings.

It will also display a full line of COOK'S metallic rod packings as used so generally on the piston rods by the manufacturers and operators of gas engines and gas compressors.

Fred E. Cooper
Oil Field Representative, Allis-Chalmers

Tulsa, Okla.

15 Arcade Way, Spaces A, B, and D

In attendance

A. G. BAILEY	DOWN BLACKBURN
H. B. BLOXOM	E. H. COCHRAN
JACK FINCHAM	W. E. GORANFLO
R. R. KIRKPATRICK	H. R. KRAMP
H. R. MOON	C. F. NELSON
C. C. SWANCY	B. S. SCOTT
E. H. SMITH	JACK SMITTLE
L. A. WILSEY	B. R. WIGGINS
O. J. WORK	ORVILLE WORK
GLEN L. WIGTON	FRED E. COOPER
W. H. ALLEN	L. F. COBURN
R. W. STOCKTON	B. H. BEACH
J. W. ALLEN	J. S. PROVINCE
H. B. APPLETON	E. L. KIRKPATRICK
H. E. HULSE	YANK HENDERSON
G. M. MALMO	ERNEST FRANKS
JOHN FLANAGAN	A. F. McGRAW

The complete line of Allis-Chalmers' models L, UE, UM and W winch tractors, and models L, UE, and UM skid winches, and the models L, E, U and W power engines will be shown. Featured in the exhibit will be the new giant, model L drilling and cleaning-out machine. Model L designed especially for rotary and cable-tool drilling, will clean out the deepest wells. Maximum line pull is 62,000 pounds, spooling 12,600 feet of seven-eighths inch line. Eight line speeds on the drum are instantly available to the operator.

A-C, model L drilling and cleaning-out machine

The drum is equipped with Cooper air-cooled brakes 52 inches in diameter with a 10-inch face. The unit is powered by a heavy duty six-cylinder engine which burns gas or gasoline having a cubic inch displacement of 844 inches. A torque of 550 feet at 700 r.p.m. This unit is also available as skid type for truck mounting which will be on display.

The UE and the UM winch tractors and skid winches are also being shown with double drum telescoping masts and cleaning-out euipment.

The Cooper-Bessemer Corp.

Mount Vernon, Ohio

Block "G" on Mid-Continent Drive between Oklahoma City Avenue and Tyler Street

In attendance

T. F. HUDGINS	B. L. POTTER
D. W. McKAY	A. M. BUXTON

The Cooper-Bessemer Corp.'s exhibit will be located in its permanent building in Block "G" on Mid-Continent Drive, between Oklahoma City Avenue and Tyler Street.

This company's exhibit will feature power and compressor units, both improved and entirely new to the well-known Cooper-Bessemer line . . . additions to a thoroughly modern series of engines and compressors for the oil and gas industry.

The company foresees an instant response to the engineering principles embodied in these newest units —units that are certain to further Cooper-Bessemer's fine record of 105 years of keeping pace with the oil industry.

Never willing to place its products in service until they have been proven in every way, the Cooper-Bessemer Corp. has always enjoyed a reputation for sound engineering and progressive, yet conservative, offerings. The Tulsa Exposition will be the first public exhibition of the company's new and improved units.

Crane Co.

Chicago, Ill.

196-197-198-199-200 Oklahoma Building

In attendance

W. H. PAPE	R. A. HENDRICKSON
ROY E. KOHN	A. J. ARMSTRONG
L. C. BINDA	N. S. EDWARDS
T. S. JONES	G. L. CAVANESS
H. L. SCHULTZ	

A welded header, showing the Crane technique in welding, will be one of the features of the exhibit. Other materials to be exhibited are:

Flow line valves	High pressure relief valves
Double disc gate valves	*Metering valves
Solid wedge gate valves	Welding fittings
Cast steel gate valves	Forged steel flanges
Cast steel globe valves	Electrically-operated valves
Malleable iron gate valves	Air-operated valves
*Malleable iron globe valves	Small brass gate and globe valves
*Hammer lug unions	Malleable iron fittings
Flow bean valves	

*Indicates new equipment introduced since last exposition.

New products introduced by Crane Co., recently for use in the oil industry are described as follows:

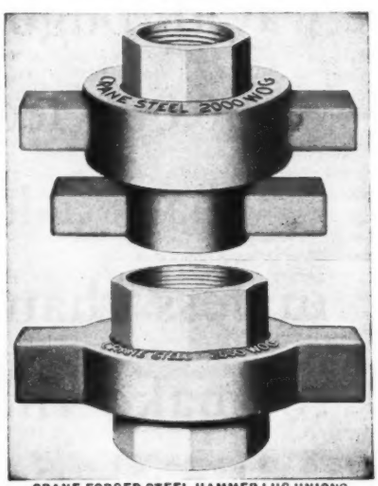
Crane hammer lug forged steel unions—Another addition to the family of Crane products is a new line of hammer lug unions. Actually, these unions comprise two distinct lines: (1) Forged steel screwed unions with one set of lugs cadium plated, and (2) forged steel screwed unions with two sets of lugs. Both of these unions have been designed for use in piping systems requiring frequent, or quick, dismantling, either to save time on the job, or for emergency purposes. In either case, a blow with a hammer upon the lug will immediately break the joint without using a wrench.

Hammer lug unions are especially recommended for service on hydraulic roll balancing systems in steel mills, where it is often necessary to break a union connection quickly. The lugs add to the convenience in breaking a joint in cramped spaces where there is not sufficient clearance for a wrench.

The oil industry, too, has found that these unions save much time and labor in field work around the boiler, because frequently, a complete unit has to be dismantled in a hurry and moved to a new location.

The single lug union is made with forged steel tailpieces and thread pieces in sizes 2-, 2½-, 3- and 4-inch (these parts are of cast steel on the 4-inch size) and have lugs on the union ring. The double lug union is all forged steel, having lugs on both the union ring and the thread-piece. It is made in sizes ⅜-, ½- and ¾-inch.

Crane bar stock valves—Three new bar stock valves which have uses in almost every industry are being introduced by Crane Co. These small 3,000-poung W.O.G. plug type disc, globe and angle valves are called bar stock valves because their bodies and bonnets are made from solid bar stock. They are considered ideal for connections on orifice meters, regulator leads, by-passes, gauges, for use as expansion valves on ammonia lines and for many similar



CRANE FORGED STEEL HAMMER LUG UNIONS

services where accurate regulation of flow is desired or where parts of measuring instruments must be protected against the sudden release of high pressures.

The Exelloy valves are particularly suitable for handling oil or gas containing sulfur compounds or for installations where steel valves do not have sufficient resistance to atmospheric corrosion.

The 18-8 alloy valves are especially suited for oil and gasoline containing hydrogen sulfide or sulfur dioxide when moisture is apt to be present.

All of these valves may be packed when wide open when under pressure. They are furnished either in steel, Exelloy or 18-8 chrome nickel alloy.

The new globe valve, No. 222½, is made with male and female ends in sizes ⅛- to ¾-inch inclusive. It is considered especially convenient where it is desirable to screw the valve directly into equipment having a female opening, thus eliminating the need for a nipple. Sizes ⅛-inch and 1-inch also are being added to the existing Crane line of bar stock valves known as Nos. 222 and 223. Crane bar stock valves, therefore, now include the globe and angle patterns with female ends in sizes ⅛- to 1-inch inclusive, and the new globe pattern with male and female ends mentioned.

Crane malleable iron globe valves—Malleable iron globe valves with plug type discs, a new Crane product, in Nos. 254-J, 255-P, 226-P and 257-P are equipped with Crane nickel alloy discs and Exelloy renewable seat rings to afford resistance to wear, temperature and galling. These valves in Nos. 346-P and 347-P are equipped with iron discs, integral seats and nickel-plated steel stems where firt hazards make the use of cast iron inadvisable and for corrosive serv-

ices where all-iron valves are satisfactory but where a material stronger than cast iron is desired.

These valves are built for working pressures of 250 pounds steam at 550° F. and 400 pounds cold water, oil or gas, non-shock. The union bonnet with which these valves are equipped maintains a strong, tight joint, according to the announcement, but can be dismantled and reassembled easily. When wide open the valves can be repacked while under pressure.

Crane Packing Co.
Chicago, Ill.

108 Texas Building

In attendance

ROY BLACKBIRD MARK BLACKBIRD
R. W. OVERTON F. E. PAYNE
R. E. ALLEN

Exhibit will cover metallic, semimetallic, and plastic packings, in coil, spiral, and set form, suitable for hot and cold oil, kerosene, benzol, propane and other special refinery services.

The following new developments will be on exhibition: "JOHN CRANE" special tube fittings for heat transfer equipment, "JOHN CRANE" malleable iron sawhorse joints, "JOHN CRANE" special hose clamps.

Crouse-Hinds Co.
Syracuse, N. Y.

56 and 57 Oklahoma Building

Curd Lumber Co.
Tulsa, Okla.

West of grounds office

Davidson Enamel Co.
Clyde, Ohio

111 Kansas Building

In attendance

T. E. STOKES J. H. RECTOR
E. S. GUIGNON, JR. E. P. BRUS

Veos porcelain wall tile is an ideal wall covering for the toilet rooms in oil company stations and other public places where beauty, permanence and cleanliness are so essential. The individual porcelain tiles are quickly and easily installed on a self-locating foundation sheet which provides insulating and sound deadening features heretofore not available in tile. Veos genuine porcelain tile is as easy to clean as china and is currently being installed in a number of toilet rooms for the leading oil marketers, including Continental Oil Co., Standard Oil of Indiana, Shell Petroleum Corp., Associated Oil Co., Pan American Petroleum Co., Gulf Refining Corp. and others. It is the modern material to meet the demand occasioned by the oil industries in their drive for clean restrooms, and planned sanitation.

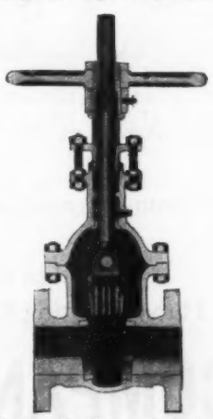
Darling Valve & Manufacturing Co.
Williamsport, Pa.

113 and 114 Oklahoma Building

In attendance

FRANK CAVENAGH H. B. DENNIS
T. M. JONES J. S. RIESEL
EARL J. CONNELLY M. L. HOUGH

Showing a line of cast steel taper seat gate valve of an improved design for high temperature and refinery



Sectional view Darling cast steel gate valve

service. One of these valves is equipped with a motor and an electric unit for remote control.

Also included are forged steel double disc gate valves for drilling through flow and flow line service. Darval semi-steel double disc gate valves and check valves for cross country pipe line and gathering lines and a quality line of all bronze gate valves. Several of the valves are cut away to show the internal construction and action of the parts as the valves are operated.

A Darling fire hydrant for use in high pressure fire service lines at refineries and industrial plants is also shown.

There is an interesting display of Darcova valve cups (the original composition cup). In addition Darval and Darflex composition valve cups and Darling balls and seats are shown.

The Dayton Rubber Manufacturing Co.
Dayton, Ohio

187 and 188 Oklahoma Building

In attendance

KARL GLANTON T. C. DAVIS
E. P. SPORE R. L. WETZEL
ROSS SCHOFIELD

The following features of the Dayton Cog-Belt Drives will be explained: Minimum space required by these drives because of smaller pulleys and extremely short center to center distances possible without use of idlers. Positive speed due to exact speed ratio being maintained through greater gripping power. Rugged, inasmuch as dust or moisture-laden atmospheres have no effect on Dayton cog-belts. Smooth starting and running because they absorb the shocks of power suddenly applied through "seating" action of belts in grooves. Eliminates vibration. Due to smooth running belts, the replacement is extremely infrequent, no lubrication necessary, no dressing, exceptional long life. Correct mechanical design eliminates necessity of frequent "take-ups." Permits less tension, therefore easy on bearings, machinery, etc.

Dearborn Chemical Company
Chicago, Ill.

106 and 107 Texas Building

In attendance

E. M. CONVERSE C. C. RAUSCH
I. L. YETMAN C. B. SMITH
B. E. CONLEY G. M. MASSEN
•TED KITTREDGE

The company announces the development of new pipe wrapping materials will be of interest to the oil and gas industry. It is claimed that these wrappers are particularly improved from the standpoint of dielectric strength and resistance to soil attachment and to penetration. It is also mentioned that these wrappers are effective in connection with cathodic protection, due particularly to the dielectric properties.

These wrappers are constructed so as to provide self-sealing seams and absolute freedom from pinholes. This represents a considerable improvement in connection with the development of underground pipe protective coatings.

Deckard Manufacturing Co.
Tulsa, Okla.

91 Kansas Building

In attendance

HUGH ROBINSON L. C. HOLLOWAY
FRED W. KESSLER C. L. DECKARD
M. M. ROGERS

Articles to be exhibited: ALLSTEEL Safety Tubing and Rod Boards, Polish Rod Grips and Clamps, Safety Landings, Beam Hangers, Sucker Rod Racks and Accessories, Safety "C" Links and Snap Hooks.

Since oil wells are each year being pumped from greater depths, and tubing and rods are pulled more often, it is necessary for field crews to work faster and more efficiently to keep the wells producing; and if workmen are to work faster and more efficiently, it is necessary for them to have tools and equipment that is safe and dependable.

Will exhibit not only its regular line of beam hangers, grips and clamps, sucker rod racks and accessories, but also its Allsteel tubing and rod boards, and safety landings.

These Allsteel tubing and rod boards are manufactured in various sizes and types to suit various conditions and designed to comply with all federal and state safety laws, and are endorsed by safety committees.

The "Safety Landing" is a small platform which can be attached to the derrick ladder, at the proper location to make its deck or tread "flush" on top with the deck of the tubing or rod boards. A guard rail of regulation height encircles the landing.

A pumping derrick equipped with a Deckard Allsteel tubing board, rod rack, rod board, and a safety landing at each board, provides workmen with the ultimate in safety and convenience, making it possible for him to give his employer the ultimate in efficiency.

Deep Rock Oil Corp.
Tulsa, Okla.

28 and 29 Refiners and Marketers Building

In attendance

CLYDE HURST ORVILLE HOLDREN
DALE MOODY

Advertising Deep Rock products.

The Dehydro Co.
Tulsa, Okla.

Block 4

In attendance

HARRY S. HORTON

Newest type gas driven units and chemical feeders for pumping and flowing wells. Movies on different types of treating plants and equipment throughout the oil industry, which include different types of treating systems and proper methods of handling various treating problems.

The DeLaval Separator Co.
Chicago

61 and 62 Kansas Building

In attendance

D. A. GARDNER H. O. SEARS
N. E. LARSEN

Uni-Matic oil purifiers for general lubricating and fuel oil purification, high speed test tube centrifuge and a special centrifuge for the separation of spent doctor emulsions. The Type DS-4 separator is a new development. It is constructed so that three discharges are made while the machine is in operation, making continuous separation of the three principal components of spent doctor emulsions.

Diamond Chain & Mfg. Co.
Indianapolis, Ind.

13 and 14 Scientific and Technical Building

Exhibiting:

Complete roller chain drive as used for mud pump (six-strand 1¼-inch pitch chain and sprockets).

Typical roller chain drives for mechanical rotary rigs.

Running display of roller chain drives and flexible couplings.

Various lengths of single and multiple strand chains in all sizes.

Finished cut tooth sprockets for single and multiple strand roller chains.

Various sizes of chain flexible couplings and cases.

Chain breaker tools.

Diamond Chain engineering handbook, General Catalog No. 617.

Enlarged photographs of Diamond chains and sprockets as used on rotary drilling rigs, spudders, winches, hoists, reversing units, seismograph machines, pumping units, core drills, generator drives, etc.

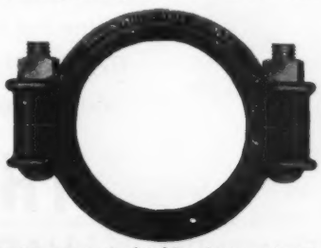
The Dillon Co.
Tulsa, Okla.

106 Kansas Building

In attendance

S. V. DILLON KYLE C. HAVELY

Displaying Dillon couplings for grooved and plain end pipe, tubing catcher and tubing lock in combination



to prevent movement of tubing in pumping well. Also used with packer to acidize and with bottom-hole adjustable choke.

Dodge Manufacturing Corporation
Mishawaka, Ind.

4 and 5 California Building

In attendance

B. L. MYERS — J. B. MILLER

Representing Industrial Sales and Engineering Co., Houston, Tex.

L. B. HOLT — W. R. DAVIS

J. H. DRAPIER

The booth will have as a background an enlarged photograph of the company's main machine shop. The photograph was enlarged from an 8-inch by 10-inch print to 8 feet in height by 18 feet in length. The equipment displayed will consist of various Dodge clutches, bearings and drive units used extensively in the oil field and refineries.

Dowell Incorporated
Midland, Mich.

Subsidiary of Dow Chemical Corp.
27, 28 and 29 California Building

In attendance

W. B. TENNIS	B. E. LANGLEY
DOYLE MILLER	W. J. RUSSELL
J. A. CUMMIN	JOHN MAYFIELD
JACK SUTHERLIN	ART TOWNSEND
JACK VILLINES	F. I. McCONNELL
J. H. COURTNER	S. C. MORIAN
FRED HOLLAND	R. L. WHITE
O. W. LYONS	N. R. CRAWFORD
G. F. WILLIAMS	J. G. STAUDT
D. G. HEFLEY	W. E. REARDON
P. E. FITZGERALD	R. D. SHAW
P. J. LEHNHARD	H. W. ROSS
DR. JOHN STONE	J. H. ADKISON
L. D. SMITHERS	M. W. FRACK
WILLARD DOW	L. I. DOAN
A. P. BEUTEL	DR. GREBE
DR. L. C. CHAMBERLAIN	L. W. LEE
C. PENHALIGEN	DR. PRUTTON
MILLARD HOOKER	DR. VEAZEY

R. L. CURTIS

Dowell Incorporated has been honored by being asked to arrange a scientific display representing the acidizing phase of the oil industry in the Scientific Hall. In the scientific display the science of acidizing will be graphically portrayed in such a manner that the average person may gain a clear conception of how production may be increased by acidizing.

Dowell Incorporated's exhibit will consist of a very attractive illustration of acidizing oil wells producing from a limestone formation. The display will include a visual demonstration of the importance of inhibited acid in acidizing and will portray the various applications of auxiliary chemicals such as a chemical Jelly Seal plug, intensified acid, emulsion preventing acid, film penetrating acid, reduced surface tension acid and a chemical blanket for use ahead of the acid.

Such types of acid treatments as the Carr patented method, compound method, reverse compound method, packer and controlled flush method, gas well treatments by means of compressed gas and the application of Jelly Seal in these types of treatments, in the regular manner, the split Jelly Seal column method, the Jelly Seal slug method and the Jelly Seal float method will be illustrated.

These types of treatments will be illustrated in such a manner that either the layman or student will readily understand just how and why the various types of treatments were made.

S. R. Dresser Manufacturing Co.
Bradford, Pa.

54 and 55 Kansas Building

In attendance

M. N. DAVIS — H. P. BONCHER

C. T. DAVIS — H. R. SHIDEL

J. E. B. GIBBONS

A complete exhibit of Dresser pipe couplings and repair devices for the construction and maintenance of pipe lines. Included will be Dresser steel couplings, fittings, repair clamps and repair sleeves. An interesting feature of the exhibit will be an actual demonstration of a flexible pipe joint. A pipe line will be maintained at a pressure of 100 pounds per square inch, and a joint on this line will be moved up and down through a 4-degree arc by an eccentric. A counter will keep track of the number of deflections, which on previous exhibits has run as high as 625,000 times before the show closed. The company calls it the pipe joint that "lives and breathes."

E. I. du Pont de Nemours & Co., Inc.
Wilmington, Del.

159 to 164 Oklahoma Building

The display will occupy 600 square feet. It will consist of a series of booths, tied together by an overall canopy and flanking a large central lounge which will serve as a focal point of the section.

Six divisions, each representing a phase of the industry, make up the exhibit, in addition to the lounge. All will feature dramatized interpretations of the products presented, making use of animated charts, miniature process operations and special lighting effects. All operations and models shown will be fully authentic.

The American Glycerin Division exhibit will demonstrate the lowering of the explosive into a well by means of a miniature of reeling equipment. A large photomural showing the process is in the background, and an assortment of torpedoes, bombs and squibs for well blasting will be shown.

The booth given over to explosives for seismic exploration will feature an action device tracing the progress of the entire operation. An enlarged picture, representing a cross-section through the ground being prospected, forms the screen of this display, with "chaser lights" indicating the path of the sound waves which go through the earth following the explosion, rebounding to a recording mechanism on the surface when they strike the strata of shale being sought. A small model of a laboratory testing apparatus also will be installed.

The Finishes Division booth will show, by means of a large photomontage and lighted arrows, the ways in which finishes serve the petroleum industry. Test panels, which determine the effects of various conditions of exposure, will be exhibited on the display platform.

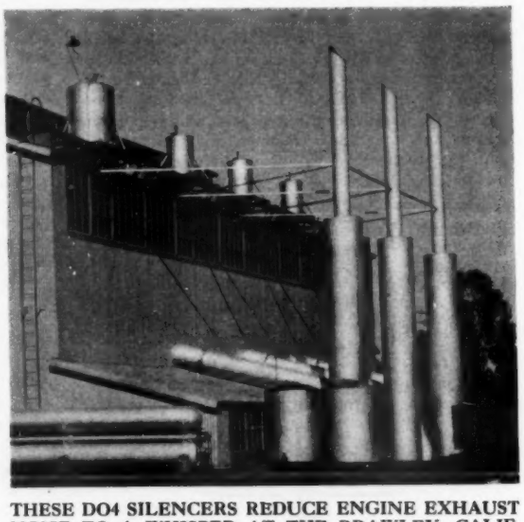
Petroleum chemicals will occupy another division, with three illustrated transparent panels devoted to gasoline colors, antioxidants and extra-pressure lubricating bases. Various displays of auxiliary chemical products will be on the platform.

Neoprene chloroprene rubber will be represented in two sections, one pertaining to its use in oil production and the other in its application to marketing. The pro-

MAXIM SILENCERS
DO DOUBLE DUTY!

THIS TYPE SC2 WILL SILENCE YOUR ENGINE AND AT THE SAME TIME TRAP ALL SPARKS

Prevent fire from flying sparks—eliminate engine exhaust noise—that is what the Maxim SC2 combination spark catcher and exhaust silencer will do, whether your engine is new or old, gas, gasoline, or oil burning. And, if you can't keep your present muffler intact, due to exhaust line explosions, then the Maxim BRX HEAVY DUTY type silencer is the solution to your problem. Also many other models available for compressors, blowers, vacuum pumps, portable rigs, etc.



THESE DO4 SILENCERS REDUCE ENGINE EXHAUST NOISE TO A WHISPER AT THE BRAWLEY, CALIF. MUNICIPAL POWER PLANT.

• • •

See Maxim Silencers in operation at the Tulsa International Petroleum Exposition at the following booths:

Frank Mfg. Company — Leland Equipment Company — Lufkin Company

Cooper-Bessemer Corporation — Happy Belting Company

THE MAXIM SILENCER COMPANY

HARTFORD, CONN. — DALLAS, TEXAS

ducing exhibit will use two miniature oil derricks against a painted backdrop, one derrick being in motion to show oil pressure drilling with a neoprene rotary hose. Equipment in which the material is used, such as pistons, packers, oil-savers, valve seats, and other products will be shown.

The neoprene marketing section will make use of tri-plane revolving pictures, showing the place of neoprene hose in loading tankers, in the service station, and in delivering fuel oil to the home.

In the central lounge will be a display of the 12 products developed during the past 10 years which, according to a recent statement by Lammot du Pont, president of the company, accounted for 40 per cent of the sales volume last year.

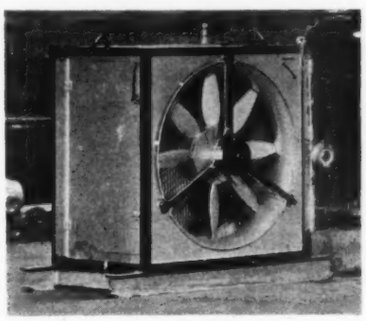
Driftmeter, Inc.
Tulsa, Okla.

Block "H" Arcade Way, Outside Space

In attendance

HOWARD SPLANE T. L. MOORE
GEORGE NICKLAU

Products to be exhibited: Driftmeter radiator cooling units for engines and compressors. The Driftmeter engine cooler is one of the newer developments



Driftmeter Radiator Cooling Unit

in this type of equipment. Its unusual box shape construction presents a neat appearance, besides providing a "pressure chamber" for the propeller type fan, which causes the air stream to spread out and flow uniformly through the entire radiator core. The propeller type alloy fan is the most efficient type known for this service, moving more air with less horsepower than other designs. The water pump is mounted inside of the cooler and coupled directly to the fan shaft, thus eliminating belt loads on the pump bearings and the additional guarding usually required.

The Duff-Norton Manufacturing Co.
Pittsburgh, Pa.

62 and 63 Oklahoma Building

In attendance

C. N. THULIN H. C. GARDNER

Products to be exhibited:

The new Duff-Norton air motor power jack
Pipe forcing jack (double acting geared type)
Automatic geared lowering jack
Genuine Barrett double action circle jacks
Self-lowering governor controlled jack
Crank lowering jacks
Speed controlled jacks
Inverted bridge jack
Horizontal jack
Screw jacks (ball bearing and cone bearing)
Automatic lowering genuine Barrett ratchet jacks
4-Way chain jack
Automotive jacks
Traversing jacks
Bell bottom screw jacks
Telescope screw jacks
Cable reel jacks
Pushing and pulling jacks
Steel trench braces

New and improved equipment shown:

An interesting feature of this exhibit will be a working model of the new Duff-Norton air motor power jack. This compact, portable, heavy-duty power jack is equipped with a rotary air motor which operates 25 to 50 per cent faster with ordinary shop air pressures, yet consumes no more air per unit of work despite its high efficiency and is built in capacities from 25 to 100 tons.

Other new and improved equipment includes the Duff-Norton double acting circle jack with extra wide flange; the new Duff-Norton geared type pipe pulling and pushing jack representing the most powerful tool of its kind, capable of pushing or pulling pipe up to 6 inches in diameter without ditching or tunneling and without changing the position of the jack.

Durametallic Corporation
Kalamazoo, Mich.

7 Texas Building

In attendance

W. D. EMERY R. R. SMITH
T. BRADEN RALPH MORGAN
A. WALKER

Exhibiting Durametallic packing, calling attention especially to our Durametallic Grade D-10, the original hot-oil packing. Also Dura Plastic packings, stressing especially the value of Dura Plastic B-1000 and Dura Plastic D-1000.

Its new mechanical seal called Dura Seal will probably attract more attention than any other part of the exhibit because of a working model running in the center of the exhibit. The company does not believe anything it manufactures has given it a wider or more favorable publicity than has Dura Seal.

Another product shown that it believes will surely attract attention is Dura Hooks or flexible packing pullers. These, the company says, are the only steel flexible packing removers it knows of on the market, and it gives an absolute guarantee with these packing pullers.

The Eagle-Picher Sales Company
Cincinnati, Ohio

254 and 255 Oklahoma Building

In attendance

T. C. CARTER GLEN J. CHRISTNER
J. J. HARUTUN CLYDE LYNDE
WILLIAM HALE H. M. ABER
F. W. C. BAILEY

Exhibit devoted to portrayal of the various insulation and metal products with which the company serves the oil industry. Among the insulation products shown will be the well-known Eagle Super "66," Eagle "77" and Eagle insulating blankets. Metal products illustrated will be Eagle lead wool, oil well plugs, and the three well-known bearing metals—Dreadnaught, Outlasta and Durable.

(Continued on Page 214)

YOU CAN GET AN OUTFIT FREE

If you have used VICTOR welding equipments you KNOW how dependably they function—if you have not become acquainted with VICTOR—here is your chance.

At the International Petroleum Exposition to be held in Tulsa, Oklahoma, from May 14th to 21st, the amazingly complete line of VICTOR welding and cutting equipments will be displayed under the auspices of our Oklahoma distributor

COMPRESSED INDUSTRIAL GASES, INC.

Meet us at the International Petroleum Exposition, Tulsa, Okla., May 14th to 21st, Booth Nos. 96-97-98

THREE "VICTOR" COMBINATION WELDING AND CUTTING UNITS WILL BE GIVEN AWAY—FREE OF CHARGE—UNDER THE FOLLOWING CONDITIONS:

Whether you can go to Tulsa or not—write us a short letter telling us, in your own language, what you consider to be the outstanding reasons for the unprecedented popularity VICTOR enjoys in the oil industry all over the world.

To the writers of the three letters giving the best answer to this question will be forwarded, free of charge, a complete VICTOR Combination Welding and Cutting Unit best suited to the winner's needs.

Letters must be postmarked not later than June 15, 1938.

Address your letter to: Department No. 2

VICTOR EQUIPMENT COMPANY
844-50 Folsom St. SAN FRANCISCO, CALIF.

(All Employees of the manufacturer or VICTOR distributors are excluded from this offer.)

THIS IS AN OPPORTUNITY WORTHY OF A FEW MINUTES OF YOUR TIME

VICTOR EQUIPMENT COMPANY

LOOK FOR THE

at

Continental's New Building

You will Find

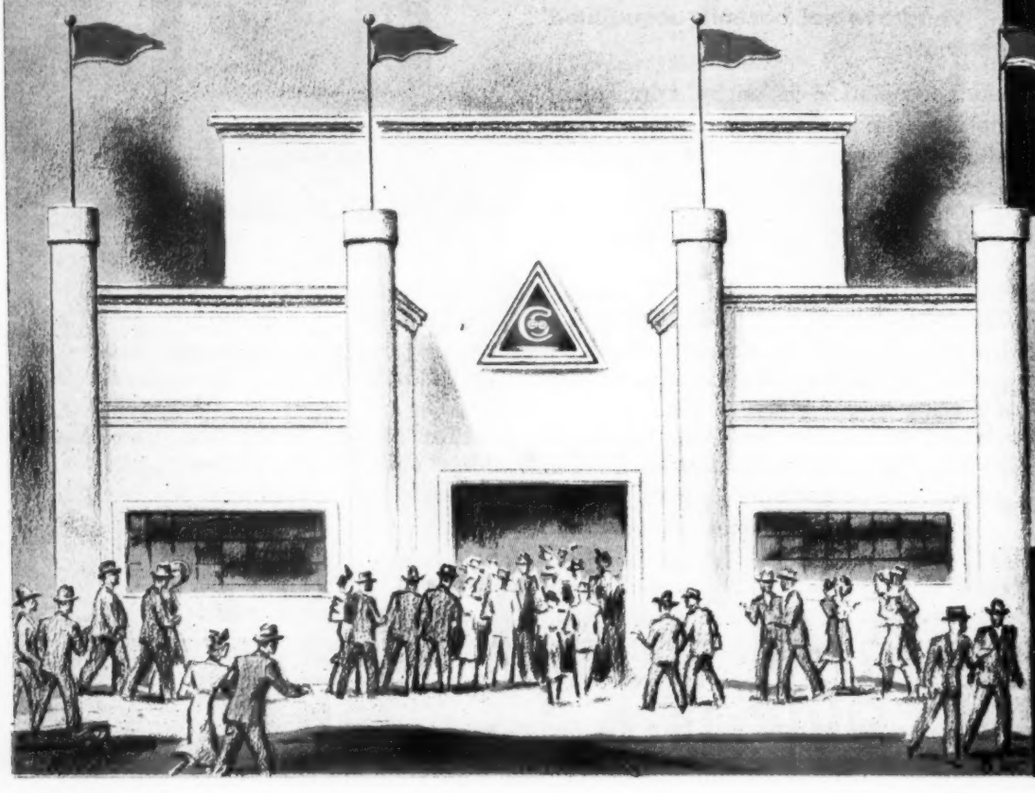
The Most Modern Improvements In DRILLING *and* PRODUCTION EQUIPMENT

All oil men know the meaning of the familiar Continental sign in the field. It is a symbol of service for the oil man's needs. At the International Petroleum Exposition, Continental invites you to make its new building and enlarged exhibit your headquarters—to see the latest developments in a wide assortment of drilling and production equipment. This exhibit is the result of earnest and co-operative planning between the Continental Supply Company and its associated companies — a tribute to the organized research and study of the oil man's problems.

Oil men everywhere look to Continental . . . in the field . . . at the show.

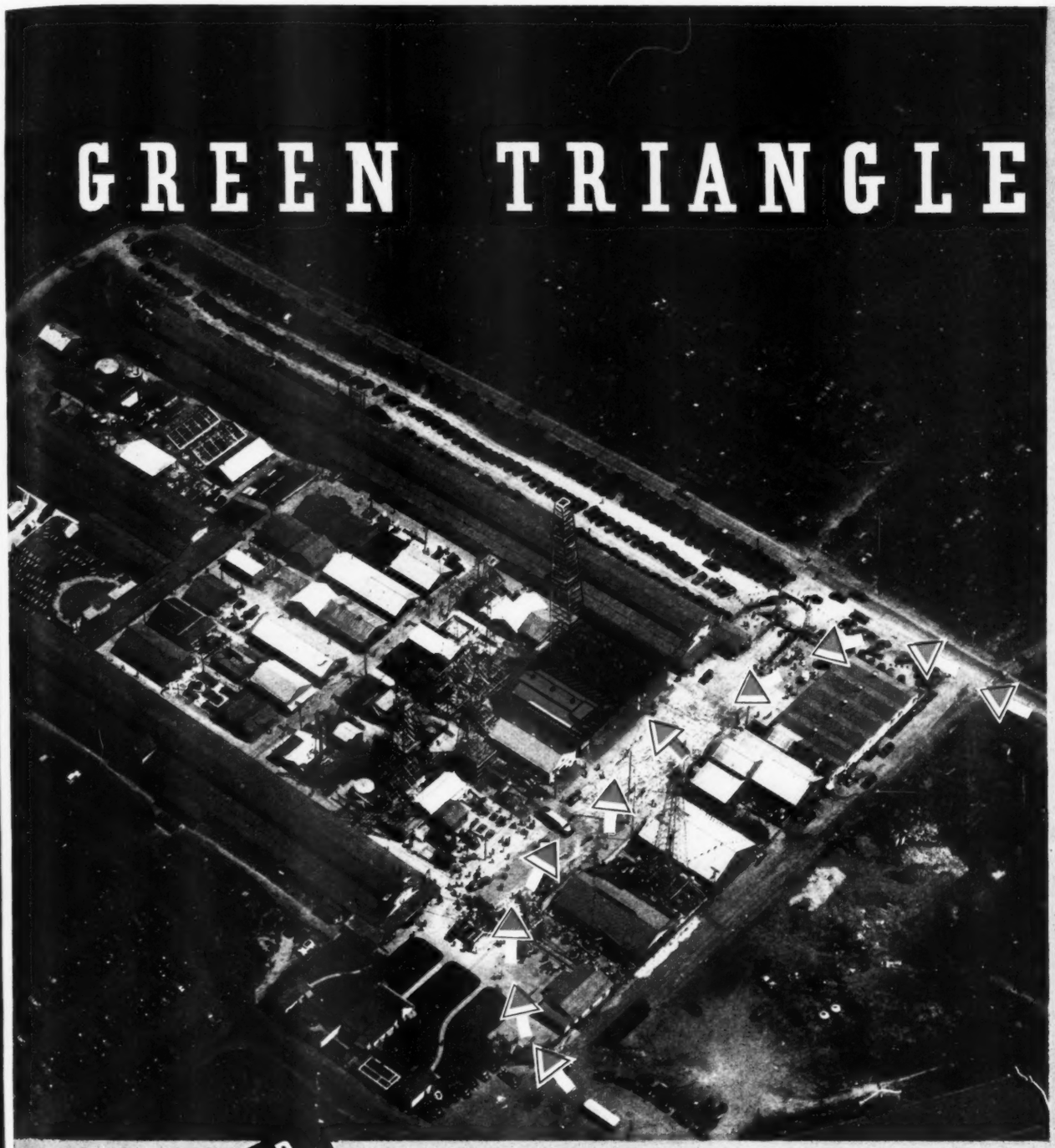
THE CONTINENTAL SUPPLY COMPANY

General Offices: **DALLAS, TEXAS**



CO

GREEN TRIANGLE



ASSOCIATED EXHIBITORS

Broderick & Bascom Rope Co.
Champion Machine & Forging Co.
Climax Engineering Co.
D & B Pump and Supply Co.
Emsco Derrick & Equipment Co.
Fairbanks, Morse & Co.
The Falk Corporation
Farrar & Trefts, Inc.
Gardner-Denver Co.
General Electric Co.
The Lunkenheimer Co.
The Mechanical Rubber Co.
New Bedford Cordage Co.
Westcott Valve Co.
Youngstown Steel Products Co.
Youngstown Sheet and Tube Co.

SERVING THE OIL AND GAS INDUSTRIES

NTINENTAL

Eastman Oil Well Survey Co.
Dallas, Tex.

59 and 44 Scientific and Technical Building

In attendance

H. JOHN EASTMAN — R. F. BOLTON
STAFFORD PARK — L. C. MILLER
ROSS E. WILEY

Complete line of oil well surveying and controlled directional drilling equipment. Introducing for the first time, the Eastman-Yowell line of perforation washers.

The Edward Valve & Manufacturing Co., Inc.
East Chicago, Ind.

37 and 38 Kansas Building

In attendance

W. W. CRAWFORD — J. E. McDONALD
W. F. CRAWFORD — W. W. MOHR

Forged steel stop valves: A complete line of screwed end, flanged end, and welding end globe and angle stop valves of forged carbon and alloy steels. Included are

many types, from tiny gauge valves for instrument lines to large screwed end forged steel hydraulic valves for 6,000 pounds working pressure. Flanged end valves include equipment suitable for the highest operating pressures and temperatures.

Check valves: Forged and cast steel non-shock piston type and ball type check valves for pressures up to 6,000 pounds.

Boiler stop valves: Edwards 3-inch and 4-inch globe and angle stop valves for use on oil field boilers. They have full area, are remarkably compact, use EValloy trim.

Hydraulic valves: Of special interest to production men is the Edward line of forged steel hydraulic valves suitable for pressures up to 6,000 pounds.

Boiler valves: Edward non-return, feedline stop-check, and blow-off valves for all boiler operating pressures.

Strainers: Users of traps, pressure regulators, pumps, etc., will find the Edward exhibit of forged steel strainers of value.

Straight-through valves: Edward forged carbon and alloy steel straight-through valves with swivel plug dicks are exhibited. These valves are for use on instrument and sampling lines under conditions where free open flow is imperative.

Electric Supply Co.
Tulsa, Okla.

20 California Building

In attendance

R. C. STUEVE — R. E. NEWHOUSE
O. F. SHAW — F. W. STOLBA
J. C. BOND

The exhibit will consist of a general line of electrical supply and material generally used by the oil industry.

Elliott Company
Jeannette, Pa.

126 Kansas Building

In attendance

H. A. PASTRE — W. E. WIDAU
L. A. KUNZLER — H. S. PAHREN
H. W. HONEFENGER — H. A. HEARN
J. N. McCLURE — C. W. KALBFUS

The company exhibit features perhaps the largest model of a tube cleaner ever built. This exact replica of a standard Lagonda 450 series motor and Type UC cutter head—standard still cleaning equipment—measures 11½ feet tall. Inside the body of the tube cleaner is a revolving turn-table on which are mounted six displays of typical tube cleaner equipment. These displays include cleaners for still tubes, curved tubes, large and small tubes and pipes, boiler tubes, etc. Shelves in the background of the exhibit show the parts which make up three typical Lagonda and Lib-

erty still cleaning type tube cleaner motors, also a display of various sizes and types of cutters, universal joints, drills, operating hose, hose couplings, lubricating devices, etc.

The Elliott line of power plant equipment is represented by illuminated photographs in the background and by a mechanical book. Equipment so illustrated covers steam turbines, electric motors, steam jet ejectors, deaerating feed water heaters, condensers, centrifugal blowers, strainers, separators, filters and grease extractors, desuperheaters, etc.

Elliott Manufacturing Company
Los Angeles, Calif.

64 Oklahoma Building

In attendance

RAY W. ELLIOTT

The following equipment manufactured by the company will be on display: Elliott rotary hose clamps, swivel connections and adapters, return bends, hose connections, safety chains, and special machines used for rotary hose service.

Emsco Derrick & Equipment Co.
Los Angeles, Calif.

102, 103, 114, 115 Kansas Building

Also exhibiting with Continental Supply Co.

In attendance

E. M. SMITH — G. W. WALTON
L. W. STAHL — S. W. WEBSTER

Exhibit: Display will be of Emsco portable pumping units, and Emsco power and steam pumps.

Emerol Manufacturing Co., Inc.
New York

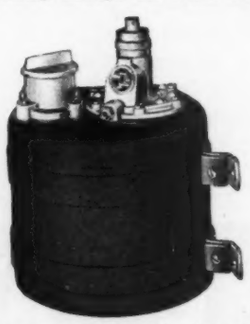
165 Oklahoma Building

In attendance

B. N. PIERCE — C. B. PIERCE
S. J. WARD

The products exhibited are Marvel Mystery oil and Marvel Mystery inverse oilers.

The Marvel Mystery inverse oiler is an automatic device designed for proportioning Marvel Mystery oil to the air passing through the intake manifold into



the cylinders of an internal combustion engine, supplying it with lubricated air laden with oil to lubricate top cylinder parts. The proportion of oil through the inverse oiler is promoted by the partial vacuum produced in the intake manifold while an engine is doing work. This proportion of the top cylinder lubricant supplies the upper cylinder parts more oil on open throttle or low partial vacuum at the time of high heat in an engine while power is being required of the engine to do work, and less oil on closed throttle, or high partial vacuum at the time of minimum heat while little power is being required of the engine to do work. Therefore, the oil is supplied to the upper cylinder parts in relation to the heat generated and the power being required by an engine to do work.

The company has recently developed a top cylinder oiler of a pressure type which is for diesel engines and large heavy-duty gas engines. It has the automatic feed control in addition to the pressure feature that supplies oil at the low partial vacuum of diesel intake manifolds.

The Engineering Company
Tulsa, Okla.

117 Oklahoma Building

In attendance

FRANK RUDROW — C. A. MATHEY
JOHN EATON

Exhibit: Rod hangers, Teco shock absorbers, and a full line of other patented products will be on display. Portapower, a gasoline engine driven generator, in ½, 1, 2 and 3 KW sizes, will be shown for the first time.

The Ensign Carburetor Co., Ltd.
Los Angeles, Calif.

42 California Building

In attendance

GILBERT WOODILL — L. C. ARTER
P. W. ENSIGN — A. W. SCHULLER
D. H. BINKLEY — M. O. TANBERG

This company will exhibit gas, combination gas and gasoline and butane carburetors and equipment. Sev-

eral makes of engines operating on butane in the outdoor exhibits will have Ensign carburetor equipment.

The booth was designed to illustrate the company's service and sales facilities in the "oil states" and where natural gas is distributed, and to show in detail parts of the various units it manufacturers. The company is desirous of having the functions and operation of its apparatus understood by all operators of power units and by the men whose duty it is to service them. The men in attendance at the booth will welcome the opportunity to meet such individuals and to explain Ensign equipment.

There will be on display cut-out models of natural gas carburetors and butane equipment assembled together so that the relation of one unit to the other and the function of each may be observed. About 70 photographs are arranged so as to illustrate Ensign butane and natural gas equipment in actual use on many types of engines in a wide variety of service. Several engine and/or oil well equipment manufacturers will run power units operating on butane. Ensign sales engineers will be on hand to explain in detail the application, operation and advantages of Ensign butane equipped power units.

The Exner-Dodge Packer Company
Coffeyville, Kans.

35 Oklahoma Building

In attendance

GLEN BRANDON — F. S. DENISON
W. S. LEAKE — THOMAS E. BRANDON
R. E. FULKERSON — JESSE H. GRAHAM
G. N. PURCELL

Displaying oil and gas well packers (emphasis upon

BIG or small... we go after them ALL!

THE CASE:

A large distributor of oil, no longer a member of the Association, continued to display the emblem and claimed the right to use it. Its products did not meet the specifications fixed for emblem oil by the Association. Suit was brought, the rights of the Association were upheld and the defendant was enjoined from using the emblem in any manner on its advertising or its cans, drums, etc.

RESULT:

The defendant was forced to pay heavy costs and attorneys' fees, to remove, at great expense, the emblem from its signs, stationery, etc., and to take a serious loss on the emblem-bearing containers still on hand.

AND THIS was the case of a marketer who just because he was big, thought he could get away with a violation of our emblem.

We have too great a responsibility to the consuming public and to thousands of loyal dealers and jobbers, to allow *anyone* to palm off a gyp oil for 100% Pure Pennsylvania. We have built a faith in Pennsylvania Motor Oils. And we intend to keep it!

So from time to time, our Association must function as a police force. Our fieldmen act as oil detectives. They report *all* suspicious cases.

Our research laboratory at State College, Pennsylvania, analyzes samples of oils as they are sent in, determining with absolute certainty whether "Western" materials have been substituted, or our emblem specifications otherwise violated.

We see to it that offenders are brought up short in court. No "ifs," no "ands," no "buts."

What does this protection mean to you? In a word, it means *profits!* Without it you could not enjoy the better trade that Pennsylvania Motor Oils attract. With it you are safe from demoralizing competition.

You can learn a lot more about our service by talking to an Association man or by writing headquarters.

PENNSYLVANIA GRADE CRUDE OIL ASSOCIATION, Oil City, Penna.

MEMBER OF PENNSYLVANIA GRADE
Guaranteed
100% PURE
PENNSYLVANIA
OIL
CRUDE OIL ASSOCIATION
PERMIT NUMBER .....
Made from
the highest grade crude oil in the world

Better Oils from the GROUND UP!

82% *Prefer Pennsylvania!*

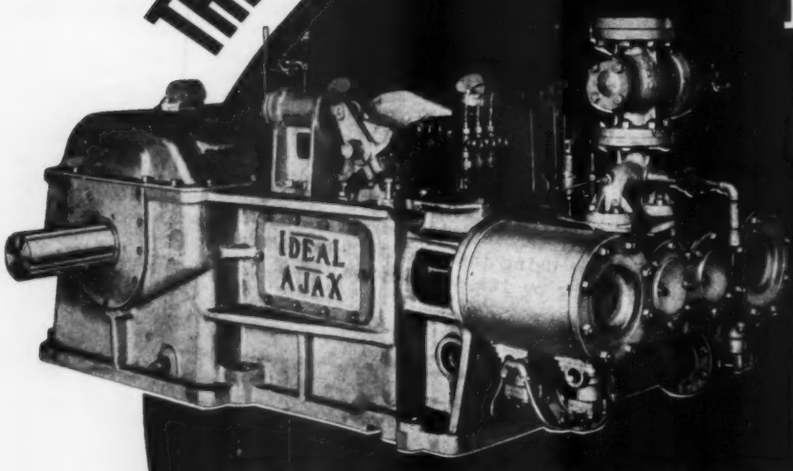
An independent research organization in a nation-wide survey just completed, reports that, in answer to the question:

"Which type of motor oil is best?"

82% of the motor car owners answered:

"PENNSYLVANIA"

THE BIG NEWS IN PRIME MOVERS AT THE TULSA EXPOSITION



IDEAL·AJAX
9 x 8
HORIZONTAL
TWIN CYLINDER
DRILLING ENGINE

IDEAL·AJAX
9 x 8
VERTICAL
TWIN CYLINDER
DRILLING ENGINE

Two great new Ajax engines, offering more for the oil man's dollar—new economy, new performance, new ease of control! The Horizontal 9x8 already has set a record-breaking pace in its many applications, including the revolutionary Underfloor Drive. The Vertical 9x8, now in full production, is distinguished by a number of exclusive features heretofore unobtainable. It is stronger, heavier, sturdier than the conventional vertical engine, capable of continuous high speed operation with safety and long-lived reliability. See these outstanding Ajax accomplishments at "National's" Tulsa Exhibit,—your National Supply man will be glad to furnish complete details!

AJAX ENGINES

Manufactured Exclusively by

AJAX IRON WORKS
CORRY, PENNSYLVANIA

Distributed by
THE NATIONAL SUPPLY COMPANIES IN EVERY FIELD

AJAX ENGINES

the Underset Formation Packer), swaged nipples, bull plugs and other fittings made from new pipe, lube-pack stuffing boxes, wire rope splicing needles, casing and drive shoes, Crumbie tubing tongs, welded all steel casing wagons.

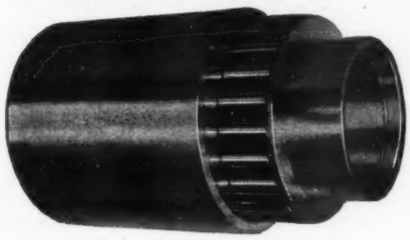
The Fafnir Bearing Co.
New Britain, Conn.

67 and 68 Kansas Building

In Attendance

A. L. MALTMAN — W. S. SHIRLEY
G. W. TOMPKINS — T. A. BROWN

Exhibiting a very complete line of ball and roller



bearings, as manufactured by this company, which are particularly suited to the needs of the oil industry.

George E. Failing Supply Company
Enid, Okla.

Outside, next entrance of Science Building

In attendance

GEORGE E. FAILING — T. E. FAILING
J. C. FAILING — W. H. VAN VALKENBURG
AL. BRAITHWAITE — E. L. ALEXANDER
W. T. CALDWELL — KAY PETERS

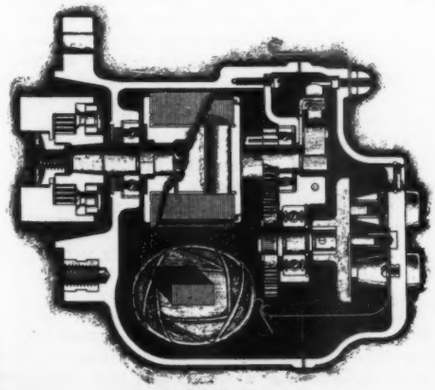
Exhibiting a new type seismograph or shothole drill mounted on lightweight automotive equipment and especially designed for operation in the Gulf Coast area or similar areas. This lightweight drill unit will incorporate hydraulic feed together with a kelly feed and incorporates an entirely new principle in this type of drill. For use with the new drill, a lightweight water tank unit will be on display. An interesting feature of this display will be the above drill unit in actual operation, drilling a seismograph shothole.

In addition to the drill unit, various products of the company will be displayed, such as core barrels, drilling bits, water swivels, assorted core samples, and a variety of the equipment employed for deep exploration drilling.

Fairbanks, Morse & Co.
Beloit, Wis.

170 Oklahoma Building

The new Type FM magneto will be displayed and demonstrated at the Fairbanks-Morse magneto booth. This magneto, which was recently introduced to the



Type FM4B magneto

engine trade, is being enthusiastically accepted as establishing a new standard in magneto engineering.

Super spark over an extremely wide range of engine speeds and compressions is assured by the skillful application of Alnico, an amazing new magnetic alloy many times as powerful as other commonly used materials. Several years of thorough field and laboratory testing have been spent in adapting the magneto design to take full advantage of the remarkable new magnets. The Type FM magneto has an output capacity far in excess of any conceivable field demand.

Similarity to the widely used Fairbanks-Morse Type RV magneto is found in the die cast magnetic rotor construction and in the one-piece, die cast aluminum alloy housing. An entirely weatherproof magneto is provided by completely sealing the housing for the positive exclusion of all dust and moisture, and by suitable design and selection of materials for performance under any temperature extremes. The cross-sectional view illustrates the compact, careful placement of parts which allows quick, convenient inspection and service.

Service adjustments have been simplified and changes made in the breaker point supports permit quick and accurate setting of the breaker point gap. Greased-packed ball bearings which require no further attention eliminate lubrication and bearing troubles. By use of a built-in window in the end cap, magneto-to-engine timing is accomplished without the removal of the distributor end cap from the magneto.

In addition to the Type FM, the display will also include several of the Type RV magnetos which have established themselves as leaders in the field of ignition dependability.

Farrel-Birmingham Co.
Buffalo, N. Y.

76 Kansas Building

In attendance

JOHN BRANDT

Exhibiting products of Sykes herringbone gear generators, Gearflex couplings, Manger flexible couplings, and instruments for measuring gear teeth.

The Fibre Conduit Co.
New York City

63 Scientific and Technical Building

In attendance

W. W. SMYTHE — T. W. CONRAD
FREDERICK P. COMBIER

Exhibiting Orangeburg Alkacid pipe and fittings. Orangeburg Alkacid pipe is a non-metallic pipe immune to alkaline or acid corrosion for the piping of saline and acid liquids. It is a "gravity pressure" pipe made in two strengths—25 pounds and 50 pounds

Announcing the New Laminated

NO-OX-ID-IZED DIELECTRIC WRAPPERS

for Underground Pipe Protection

BOOTHS Nos. 106-107, Texas Bldg.

Dearborn announces new developments in Wrappers. Some of the outstanding features are as follows:

1. Increased dielectric strength.
2. Especially valuable for use in connection with cathodic protection.
3. Ability to retard the action of soil organisms (bacteria and mold).
4. The nature of these wrappers provides self sealing seams and great flexibility which insures conformity to the undercoating.
5. Resistant to soil attachment and penetration.
6. Laminated construction and absolute freedom from pinholes is a great advantage over all types of processed, matted or woven materials. Undercoatings are protected from loss or damage.
7. Convenience in handling which has always been associated with NO-OX-ID products. NO-OX-ID and NO-OX-ID-IZED Wrappers are designed for both machine and hand application, and therefore meet all application requirements.

In these latest developments, Dearborn offers the combined results of twenty years of active laboratory research and field experience. Combinations of NO-OX-ID and NO-OX-ID-IZED Dielectric Wrappers can be recommended to meet all conditions of exposure.

DEARBORN CHEMICAL COMPANY

205 East 42nd Street, NEW YORK — 310 South Michigan Avenue, CHICAGO — 807 Mateo Street, LOS ANGELES

NO-OX-ID IRON-RUST

The Original Rust Preventive

Represented by

E. M. Converse — C. C. Rausch
I. L. Yetman — C. B. Smith
B. E. Conley — G. M. Massen
Ted Kittredge

Headquarters MAYO HOTEL

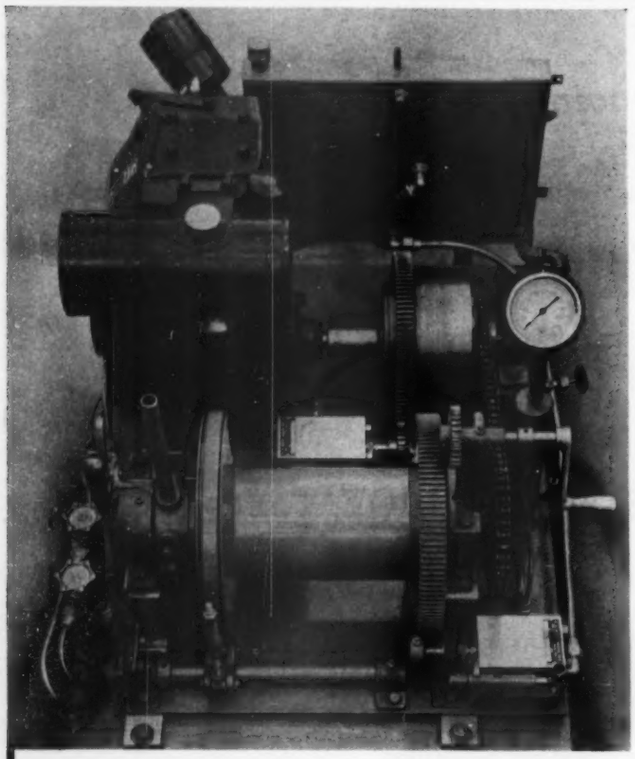
hydrostatic pressure valves. It is of great interest to the oil company producing departments in connection with salt water disposal lines where corrosion of metallic pipes has been a great problem. Many other applications of the company's unusual material have developed in various branches of oil business such as shot-hole, light refinery pipe use in connection with corrosive waters, etc.

Orangeburg is a trade mark that has been known to the electrical utility industry for 45 years as the standard conduit for underground raceway construction—its peculiar characteristics are of particular interest to the oil companies in connection with corrosive problems on pipe work.

Fisher Governor Co.
Marshalltown, Iowa
88 and 89 Texas Building
In attendance
P. A. ELFERS R. A. ENGEL
C. D. PETERSON R. S. McKEEVER
Displaying a complete line of automatic pressure controls, pump governors, reducing valves, back pressure and relief regulators, pilot operated and pressure balanced gas pressure controls, liquid level controllers of both the remote and direct operated types. In connection with liquid level controllers, there will be two entirely new devices shown for the first time, one the Fisher averaging type pilot controller for liquid level service and the other the new tubular long-chamber float type liquid level controller of the pilot operated design.

The company will also exhibit the most outstanding development in the gas industry in recent years, that is, the Fisher-King gas pressure booster, for gas distribution and high-pressure gas service, together with a complete line of gas pressure controls.

Fluid Packed Pump Company
Los Nietos, Calif.
130 and 131 Kansas Building
In attendance
CLYDE ELLWOOD ROBERT J. MILLER
E. KENT SPRINGER
Display will consist of cutaway models of the "Positive Pull," "Removable," and "Rigid" type fluid packed pumps; the "Marginal" fluid packed pump, a small pump embracing the Fluid Packed principles, but it is made especially for use in small production, shallow and stripper wells where severe abrasive and sand conditions prevail; the "Producer" and "Volume Producer" groove seal pumps; the "Petrol A" groove seal pump, a small size and design, especially made for stripper well use; Flupaco seats and balls made of various materials to meet various service conditions; and the new Flupaco anchor hold-down for rod and tubing pumps which incorporates a number of improvements, including a hardened steel ring in the hold-down shoe to resist the wear encountered in pulling the pump.



C. A. MATHEY
Measuring
Reel.

See It at the Oil Show
Booth 116 Okla. Bldg.

•

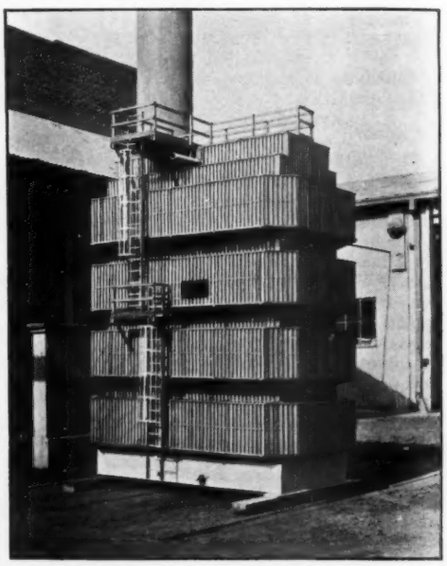
WELL SURVEYING UNITS
GAS TESTING UNITS
OIL FIELD SPECIALTIES

•

C. A. MATHEY MACHINE WORKS
305 East 3rd St. Tulsa, Oklahoma

The Fluor Corporation, Ltd.
Los Angeles, Calif.
Block M
In attendance
P. E. FLUOR W. EARL DUNN
M. H. ROTHS M. A. ELLSWORTH
The exhibit consists of a Model Fluor Type 4A12 Aerator cooling tower built to one-quarter size. This tower is complete in all details and is an exact replica of a standard 4A12 cooling tower sold throughout the world.

The corporation is proceeding with field tests of a new type cooling tower which it expects to place on



the market within the next few months. This cooling tower will be radically changed in construction and design. Besides being manufacturers of the aerator and forced draft cooling towers, air-cooled mufflers, and gas scrubbers, the corporation is designer and builder of absorption, dehydration, compressor and gas-lift stations. Also cracking units, lube oil plants, diesel plants and other general oil field construction.

Foote Bros. Gear and Machine Corp.
Chicago, Ill.
52 and 53 California Building
In attendance
GEORGE J. FIX MAX E. LANDRY
F. A. EMMONS J. J. TURNER
RAY F. RIDDLE
Will exhibit several different sizes of the company's standard single and double reduction helical oil well pumping reducers; one of which will have the cover removed, operating in oil, showing the internal construction lubricating system. This unit will be driven by ¼-horsepower motorized reducer operating at 1,750 r.p.m. with a final speed of about 15 r.p.m. on the slow speed shaft.

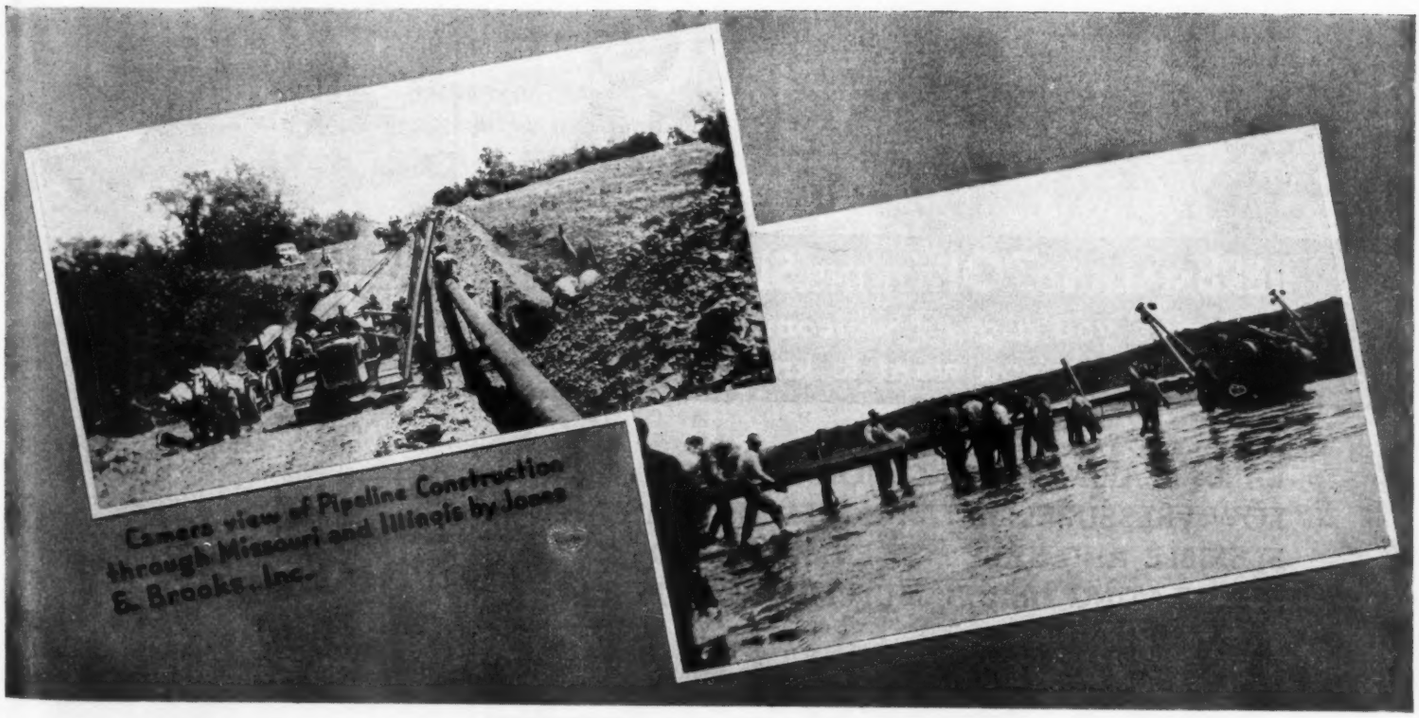
Of interest to the refining man, the company will show one of its large vertical heavy duty agitator drives, combination worm and helical gears with very high ratios, maintaining high efficiency. The top of the vertical shaft of this unit will be mounted on a circular table on which will be displayed various sizes and types of our standard spur, worm and helical speed reducers, also fractional and integral type motorized reducers. Photograph rack will also be available showing applications of products.

★ *Section of job completed through Missouri by Jones & Brooks*

The Most Hazardous Jobs Completed on Schedule by Men Who Know Pipelining . . . !

Jones & Brooks, Inc.

Pipeline Contractors • Reconditioning



517 INSURANCE BLDG. PHONE 7-4111 OKLAHOMA CITY, OKLA.

★

The Four Wheel Drive Auto Co.
Clintonville, Wis.

Outside space—Block N

In attendance

W. A. OLEN — R. H. SCHMIDT
F. M. HIGGINS — S. H. SANFORD
H. T. FRANCIS — W. C. MERRILL

Noteworthy changes and improvements are apparent in the Model MJ 6x6 FWD six-wheel drive truck, to be shown. Designed to give maximum performance, and having new styling to keep FWD ahead of the parade of progress in automotive design and construction, the MJ 6x6 incorporates the principles adhered to by the Four Wheel Drive Auto Co. for 28 consecutive years of manufacturing.

The entire cab, fenders, hood and radiator have been redesigned to offer a more pleasing exterior and interior appearance. A V-type windshield is used. From the rear of the cab to the radiator a single line is followed, giving a streamlined effect. Fenders are skirted, and two 35-gallon fuel tanks are now concealed under the skirting on the running board.

Included in the oustanding mechanical features of the FWD Model MJ 6x6 are: A rated capacity of 10 tons; a chassis weight of 18,000 pounds and a gross vehicle weight of 40,000 pounds; 240-inch wheelbase; 150-hp. diesel engine developing 500 foot pounds torque, 13-inch two-plate clutch; high-capacity transmission with 10 speeds forward and two reverses; and a totally enclosed driving mechanism which makes axles, gears, brakes, etc., dust-proof, weather-proof, and grease tight. The exclusive FWD center differential relieves unnecessary driving strain and assures undistorted flow of power to six driving wheels.

Foxboro Company
Foxboro, Mass.

4 and 5 Scientific Building

In attendance

J. B. McMAHON — G. B. LANE
C. L. BRYAN — H. G. GRIFFITH
L. PARTEN

The ability of modern instrumentation to "crack hard nuts" in industrial control problems will be demonstrated literally at the Foxboro exhibit. A Foxboro Stabiliflo valve, operating with a Valvactor mechanism, will dramatize the exactness of the Valvactor adjustment by controlling an assembly for cracking hard-shelled nuts.

A demonstration of the Foxboro pneumatic remote transmission system will also be featured. Prominent will be a complete pipe still control panel. Two small demonstration units are to be included, one to show extremes in temperature measurement.

A bucket of dry ice will be placed near this instrument, so visitors can get temperature readings, by inserting the thermometer bulb in the dry ice, of approximaterly —60° F. Class 4 temperature recorder, having a range of —80° F. to +100° F., will be used. The other temperature instrument will be an indicating potentiometer pyrometer complete with thermocouple, which will be demonstrated by heating the couple with matches.

France Packing Co.
Philadelphia, Pa.

86 Oklahoma Building

In attendance

JAMES A. McPEAK — JOSEPH M. FULLER

A complete line of floating type metallic packings for all types of engines and compressors.

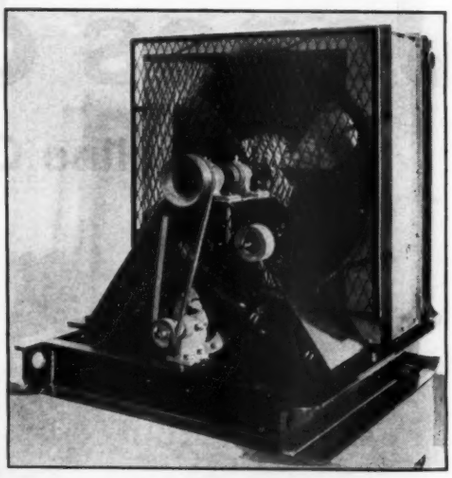
Chas. J. Franks Co.
Tulsa, Okla.

1 Hobbs Street

In attendance

CHAS. J. FRANKS — W. D. MOORE
DON DAVIS — E. H. LUCIA
GEORGE MERCER — JACK SIMMONS

Exhibiting Chas. J. Franks engine coolers, made in three sizes up to 25 horsepower, 30 to 50 horsepower, and 60 to 80 horsepower. The new improved



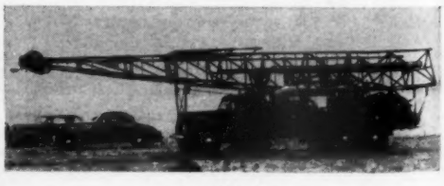
type is so constructed that it can be dismantled in the field for cleaning and easily reassembled. The frame and tanks are cast iron, which adds to rigidity and ruggedness. The ship channel steel framing makes the entire unit heavier. Bearings are enclosed type, dust and rust proof.

Franks Manufacturing Corp.
Tulsa, Okla.

Block Z on Skelly Drive

In attendance

H. H. FRANKS — CARL WHITE, JR.
R. M. WHITE — L. V. HOPKINS
A. V. SIMONSON — C. W. BARNDOLLAR
EARL KIRBERGER



Model 3000 A

With more power and capable of drilling to 5,000 feet, the company will display a new portable rotary unit,

Swing
INTO BOOTHS
NUMBER 26-27
REFINERS & M... ETERS BLDG.
"HERB" MALAND, "POP" ATKINS, "SLATS" LOVE
Will give you a good welcome and tell
you anything you want to know about:
BALL BEARING SWING JOINTS (HIGH & LOW PRESSURE), METAL HOSES THAT ARE FLEXIBLE AND SAFE FOR EVERY PURPOSE, CIRCULATING HEADS, MUD MIXING GUNS!
Chiksan
CHIKSAN OIL TOOL CO. LIMITED
FULLERTON, CALIFORNIA ★ SHELL BUILDING, HOUSTON, TEXAS

VISIT——

The Oil Bank of America

While Attending—

The World's Fair of the Oil Industry

in the

Oil Capital of the World

Obviously, we cannot move our bank to the International Petroleum Exposition grounds, but we do cordially invite you to visit us during your stay in Tulsa.

After you have inspected our banking facilities and met our personnel, we believe you will better understand why the National Bank of Tulsa is regarded by oil men everywhere as *"The Oil Bank of America."*

The National Bank of Tulsa acknowledges with pride and appreciation the privilege and the responsibility of serving so important an industry as petroleum.

NATIONAL BANK of TULSA

Member Federal Deposit Insurance Corporation

mounted on a trailer 36 feet in length and carrying an 84-foot derrick. The entire unit, called Model 5000, is complete and ready for drilling with derrick, five sheave crown block, stacking board, power screw mast raising device, swivel, rotary table, kelly, drawworks, regular and automatic catheads, mud pump, two engine power plants with facilities for compounding engines to any drive, extra capacity transmission, all unitized for economy of operation and fast rigging up and tearing down. The power plant is assembled as a unit on a skid which is removable from the trailer for transportation on the highways. Power plant includes two identical engines, engine drives, compounding shaft, friction takeoff for mud pump drive, takeoff to drilling unit, compounding clutch, suitable skid frame, and controls for all drives and engines run back to driller's position. The power plant assembly may be transported on the trailer for short moves in the field where the highway law regarding excessive width does not apply. The engine equipment is optional and may vary from six-cylinder engines of 600 cubic inch displacement to 1,000 cubic inch; to operate on gas, gasoline, butane, or diesel fuel.

Will also display Model 3000-A, portable rotary and deep core drill all mounted and unitized on a single track including derrick, and capable of drilling to a maximum of 4,000 feet for coring and for production to 3,000 feet.

The Frick Company
Waynesboro, Pa.

30 and 31 California Building

In attendance

GEORGE BASORE — J. H. CARTER
VAN J. SPARKS — J. C. RUST

In addition, many of the company's distributors will have representatives, among them the Embrey Refrigerating Co. of Oklahoma City, which will erect the Frick exhibit.

Display will include a cutaway ammonia compressor under slow motion, a four-cylinder Freon-12 compressor of the type used in air conditioning, a non-condensable purger for refrigerating systems handling refrigerated food lockers as made by the Knickerbocker Stamping Co.

The booth will have as a background a handsome panel 20 feet long, illustrated with colored photographs.

OTIS PRESSURE CONTROL, INC.

Cordially invites you

to visit the Otis exhibit at the International Petroleum Exposition, Tulsa, May 14-21, Booths 224-225, Oklahoma Building.

WE WILL DISPLAY THE FOLLOWING EQUIPMENT

1. Otis Square Kelly Drilling Head and Pressure Operated Union for drilling in under pressure control.
2. Otis Snubbing Equipment for the running and pulling of pipe under pressure.
3. Otis Removable Bottom Hole Chokes.
4. Otis Mixing Valve.
5. Otis Tubing Safety Valve.
6. Otis Tubing Closing Tool.
7. Otis Tubing, Drill Stem and Casing Plugs.
8. Otis Paraffine Scraper and Stop.

OTIS — Pressure Control — Service — Equipment

Tower Petroleum Bldg.
DALLAS, TEXAS

Houston, Texas
Kermit, Texas
Wichita Falls, Texas
Glendale, California
Wellsville, N. Y.
Rodessa, La.
Oklahoma City, Oklahoma
Ada, Oklahoma
Hobbs, New Mexico

Frick-Reid Supply Corp.
Tulsa, Okla.

Frick-Reid Building, Block 1, Drake Drive

In attendance

WILLIAM M. PATTERSON — R. T. FRICK
J. L. SHAKELY — ROBERT McCOY, JR.
H. H. WILSON — V. V. McGREW
H. C. WHITE — F. J. KOPP
A. G. BASTIAN — J. W. KAYE
A. L. HENDERSON — L. J. DAVIS
A. A. HOPPER — H. D. STANLEY
H. L. WILKINS — GEORGE L. REID
O. C. STAPLES — L. G. SUTTER
A. C. FRAMPTON — V. C. CANTER
FRED HAMMETT

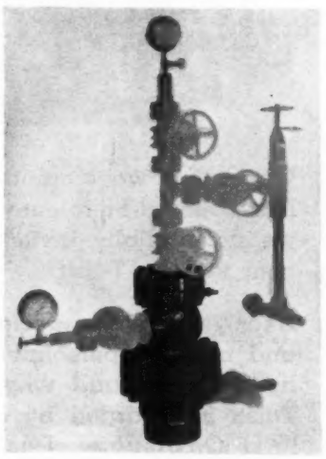
Exhibiting products of the following companies:
Beaumont Iron Works Co.
Joseph Reid Gas Engine Co.
Republic Rubber Division, Lee Rubber & Tire Corp.
Midwest Piping & Supply Co., Inc.
Axelson Manufacturing Co.
Linear Packing & Rubber Co., Inc.
Jensen Bros. Manufacturing Co.
Raybestos Division of Raybestos-Manhattan, Inc.
National Transit Pump & Machine Co.
Unaweld Manufacturing Co.
Whitlock Cordage Co.
Wood Shovel & Tool Co.
J. P. Ratigan
Revere Copper & Brass, Inc.

Beaumont Iron Works Co.
Beaumont, Tex.
Frick-Reid Building

In attendance

A. I. BRAINARD — E. J. ROACH
JAS. S. BUCHANAN, JR. — R. W. HILL
G. T. ROCKENBAUGH — C. J. HARRIS
R. G. BRANDES — T. L. FULLER
J. H. SAWYER — E. F. COOKE
N. G. NUTTALL

Included in the exhibit will be heavy-duty drilling crown and traveling blocks, types "KY," "KX," "PY" and "PK"; types "PG" and Deluxe tubing traveling blocks;



types "PM-60" and "C-262" pedestal sheave blocks; type "EL" pumping crown blocks; and a representative line of casing and tubing heads and christmastrees.

Joseph Reid Gas Engine Company
Oil City, Pa.

In attendance

JOHN REID — H. L. HILEMAN
PAUL L. SLONAKER — R. D. IRWIN
M. A. DORNEY

The exhibit will be included as a part of the Frick-Reid Supply Corp. display, and will include newly developed products.

The new V-2 7½ by 9 inches vertical twin cylinder diesel engine will be shown in operation, being used to drive the new Reid "Air-Oil" fluid balanced pumping unit. This new engine, rated 40 hp., incorporates numerous features of design. The new "Air-Oil" fluid balanced pumping unit is built for a 22,000-pound polished rod load at 74-inch stroke and 20 strokes per minute.

The new Reid "Terrier" gas engine will be shown in operation, being used to operate two enclosed geared

pumping powers. This engine, rated 14 hp. to 30 hp. in a speed range from 250 to 550 r.p.m., is a single cylinder, horizontal engine with all modern refinements. It will include the patented Reid "Takeoff" with new Reed cone clutch and Reid bed-idler. The powers being operated by the engine are the new Reid enclosed, completely Timken equipped geared powers, the PE-3, rated 30 hp. at 20 strokes per minute, and the PE-10, rated 100 hp. at 20 strokes per minute.

The exhibit will also include the new Reid UP-10 pumping unit, which is a single crank, beam balanced unit, rated 10 hp. at 20 strokes per minute, with a maximum polished rod load of 10,000 pounds and 37-inch stroke.

Republic Rubber Division of Lee Rubber & Tire Corp.
Youngstown, Ohio
Frick-Reid Building, Bovaird Supply Co., Drake Drive
In attendance
N. M. GROVE C. H. ZIEME

Exhibits complete sample display of mechanical rubber goods for service in the various divisions of the oil industry. Principal items include oil field belting, rotary hose, suction hose and various rubber goods particularly suited to refining and producing divisions.

Midwest Piping & Supply Co., Inc.
St. Louis, Mo.
Frick-Reid Building
In attendance
A. G. STOUGHTON F. C. FANTZ
C. S. SIMON C. W. CRYER
J. L. JACOBSON

Exhibit will include fabricated pipe, welding fittings, and specimens of alloy welds.

Axelson Manufacturing Company
Los Angeles, Calif.
Frick-Reid Building
In attendance
J. C. AXELSON M. F. SMITH
D. H. BARNWELL A. A. DILL
D. M. HAMMETT E. W. BRANT
J. D. BRANDER E. L. CHANDLER
H. D. COLLINS F. C. CUMMINGS
W. H. DAVISON H. W. DRES
H. A. HINTZ W. R. LAKE
L. F. LAMB P. I. LAYMAN
C. G. MAGUIRE H. F. McCOY
L. W. MOSELEY H. K. PENNY
J. W. ROCKWELL T. F. SPAIN
J. R. WALKER C. M. WORLEY

Linear Packing & Rubber Co., Inc.
Philadelphia, Pa.
Frick-Reid Building
In attendance
A. W. SWARTZ F. A. LEWIS
A. W. SCHWARTZ F. A. LEWIS
W. C. FISLER

Exhibiting Linear 160, Lincel acid packing, a pure glass fibre yarn packing square plaited, very soft and impregnated with high acid resistant lubricants. Non-abrasive and non-scoring. An excellent packing against all acids used in the oil industry on reciprocating, rotary and centrifugal pumps, valve stems, etc.

The new type of Linear 860 par packing, constructed for swivel sets, further reduces friction and heat.

Linear 325 oilproof packing is an improvement, in which the rubber binders have been replaced with neoprene, reducing swell to a minimum. For use against petroleum solvents.

Linear 348 neoprene refinery packing, a U-shape channel packing, is greatly improved by using duck and neoprene in the casing in place of the usual rubber and the new center block of neoprene replacing rubber, making a completely oil-resisting packing for refinery and gasoline plant services on rods and plungers of reciprocating pumps.

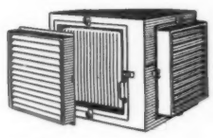
Linear 880 double spring construction segmental rings, for compressor service, contain two parallel springs, with openings at opposite sides of the ring, instead of the one spring as in common practice, evenly distributing internal pressure and eliminating the possibility of flat sided rings. For use where lubrication and corrosion are factors.

Linear 1000 Rotoseal and Linear 1050 metallic packings are completely new developments of this type, the former for seals for vacuum, low or high pressure centrifugal and rotary pumps, and the latter for reciprocating rods.

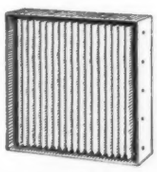
In manholes or in *any* confined working space: tunnels, pipe galleries, process tanks, storage bins, etc., the *Cable Manhole Ventilators* (Bulletin 163).

For rapid cooling and ventilating of boilers, tanks, retorts, etc., the *Boiler Manhole Blower* (Bulletin 161-3).

For directing a flow of cool air upon workmen (also cooling off furnaces, ventilating motors, generators, etc.) the *Heat Killer* (Bulletin 160-4)

★ 

Attached to the intake of air compressors and engines, the Coppus Air Filter provides clean air, free from abrasive dust particles (Bulletin F-310-3).

★ 

★

Improving working conditions, reducing dust-caused maintenance, protecting product purity, for recovering valuable air-borne substances, — the Coppus Unit-Type Air Filter. (Bulletin F-320-4).

Tiny dust particles no bigger than 2 micron-size are constantly undermining the production of your plant. Singly, each particle of dust (.0008") couldn't cause much damage. Multiply them by millions . . . and they cut a sizeable hole in your profits. Machines get sluggish — production crawls — or product purity is lessened — maximum working efficiency made impossible.

95.6% of these 2 micron-size dust particles can be eliminated from your plant (or engines and compressors) by Coppus Air Filters . . . the only type on the market providing such a high degree of dust protection.

Coppus is dry-type; no oil, no clogging. Steel construction. No wires to snap. Wide pockets give continuous air flow. The engine filter is virtually self-cleaning through intake pulsation. Other Coppus Products *remove* foul air . . . direct *fresh* air where you want it . . . utilize air for *work*. Write your air filtration or air moving needs.

COPPUS CLEANS . . . MOVES . . . EMPLOYS AIR

Write Coppus Engineering Corporation, 354 Park Avenue, Worcester, see listing of manufacturer's representatives in THOMAS' REGISTER. In SWEET'S — Air Filters for Air Compressors, engines, and plant installations, Blowers, Heat Killers, Mine Ventilation Equipment, Steam Turbines.

COPPUS PRODUCTS — Designed for your industry — Engineered for you

VISIT Booth 48--Kansas Bldg.

INTERNATIONAL PETROLEUM EXPOSITION
TULSA, OKLAHOMA . . . . MAY 14th to MAY 21st

It Will Convince You of the Superiority of

"XL" UPSET AND PLAIN TUBING COUPLINGS
RECESSED LINE PIPE COUPLINGS
EXPLORATION (Shooting) COUPLINGS

and the New "All-Thred" CLOSED THREAD PROTECTOR

WHEELING MACHINE PRODUCTS CO.
WHEELING, WEST VIRGINIA

Jensen Bros. Mfg. Co.
Coffeyville, Kans.
Frick-Reid Building and the Bridgeport Machine Company
In attendance
W. G. JENSEN K. R. JENSEN
J. W. TINSLEY FLOYD GERDES
HARRY FARMER A. V. TURNER
C. R. STAHL L. G. FENN
W. G. HELLINGHAUSEN

Frick-Reid exhibit will include five units of the very latest models of the famous Jensen straight lift jack, cable head type. Bridgeport Machine Co. will exhibit one No. 22 (largest size unit) in outside space and one No. 2 (smallest unit). Both will be in operation and will be the very latest models of the cable head type. Both exhibits will present a very interesting method of operating the Jensen equipment.

Raybestos Division of Raybestos-Manhattan, Inc.
Bridgeport, Conn.
Frick-Reid Building
In attendance
KINSEY BURR

Brake lining.

Unaweld Mfg. Co. of Texas
Houston, Tex.
Frick-Reid Building
In attendance
R. A. BYRD F. W. HAMMETT

Whitlock Cordage Company
Jersey City, N. J.
Frick-Reid Building

Exhibiting Whitlock manila drilling cable, manila cat line, manila spinning line and Whitlock waterflex manila rope.

The Wood Shovel and Tool Company
Piqua, Ohio
Frick-Reid Building and 1 Texas Drive
In attendance
F. T. NIPHER D. M. BELL

This company is to have two exhibits. A booth will be occupied in the Frick-Reid Supply Corp. Building, where various types of hand shovels, spades, and scoops will be shown. Also a new item which is of great interest to the oil refineries, a line of shovels and scoops produced from aluminum alloy which have nonsparking qualities. It is therefore a safeguard for the refineries against explosion being caused by sparking of metals.

In addition to the exhibit in the Frick-Reid Building, it will also have a machine showing how it tests the abrasive wear and strength of shovels. This will be in operation in booth No. 1 on Texas Drive.

J. P. Ratigan
Los Angeles, Calif.
Frick-Reid Building
In attendance
J. P. RATIGAN J. J. CAVE
L. W. HENSHAW C. J. RATIGAN
G. M. SEYBOLD

Exhibiting new pumping equipment, oilless pitman stirrup rockers, oilless rocker beam hangers, oilless rubber bearing beam hangers, and new coupling wrenches made especially for the late type sucker-rod couplings. These couplings have no flats or squares for a square wrench, as there have been on the previous sucker-rod couplings. Generally speaking, all sucker-rod couplings are so hard on the surface, that a die of any dimension will not grab hold. This new coupling wrench will take several sizes and is a three point bearing. It will hold the round coupling very substantially without damaging the coupling, while screwing on or off. It is also practical on couplings that have flats.

Revere Copper and Brass Incorporated
New York City
Frick-Reid Building
In attendance
W. H. HITCHCOCK W. R. WEIL
H. B. STEPHENSON W. G. SEIDLITZ
G. A. WATERMAN N. H. LAMBERT
WILLIAM E. DUGGAN

Varied methods of installing condenser tubing will be the chief attraction of Revere exhibit; also interesting historical exhibits. The feature will be Revere condenser tubes and plates since these products are used extensively by the oil refinery and process industries, as well as by the marine and power industries, for heat transfer, cooling and condensation units.

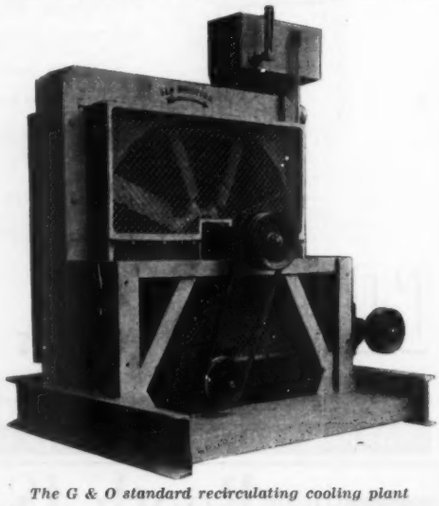
In addition to the pictorial presentation of the manufacturing steps in the production of condenser tubes and plates, Revere has constructed a special condenser tube plate showing numerous ways of actually installing or inserting tubes in condensers. In all, 25 methods of tube insertion are depicted.

Since the British Admiralty began using brass condenser tubes of 70 per cent copper and 30 per cent zinc, for marine use in 1871, there have been developed by constant research many new alloys to meet the increasingly severe operating conditions in the above mentioned industries. Chemical composition of the cooling water, air entrainment, velocity and absence or presence of suspended solids, all of which may vary greatly in the different industries, and in the same industry under different operating conditions, are some of the factors that influence the selection of the right type of condenser tube to prevent costly breakdowns and frequent replacements.

Also featured as a note of historical interest is a wooden model made by Paul Revere from which he built the first copper rolling mill in America in 1801. The newly formed federal government loaned Paul Revere $10,000 for this ambitious and successful enterprise. In 1804 Paul Revere sent his son and partner, Joseph Warren Revere, to Europe, and especially to England, to study operating methods in the copper and other metal mills then in existence. The now historical passports, letters of introduction written by Paul Revere, and the note books of his son, replete with full hand drawings of English machinery and operations, are a part of this interesting exhibit. They are pointed out as the first evidence of effort towards industrial research in America.

G & O Manufacturing Co.
New Haven, Conn.
221 Oklahoma Building
In attendance
MARTIN MALIA CHANT OWEN
EARL VINCENT

Closed cooling systems for oil field pumping engines built by the company are fully described in literature and engineering data obtainable at its booth.



The G & O standard recirculating cooling plant

Oil men are invited to inspect the unusually heavy and rugged construction of the unit known as "The Standard Recirculating Cooling Plant." The experience of the builders, who have specialized for 23 years in the design and manufacture of engine cooling radiators for heavy-duty service, is available to oil men through the firm's representatives.

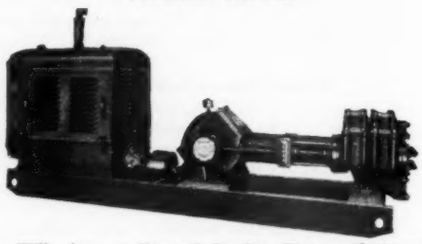
The Garlock Packing Co.
Palmyra, N. Y.
59-60 Texas Building
In attendance
G. L. ABBOTT PHIL ARNOLD
R. M. WAPLES F. E. ERLANDSON
J. E. FOLEY

Will exhibit a wide variety of mechanical packings developed especially for the petroleum industry in its four branches—packing, refining, transportation and marketing. Included in the Garlock line are fibre and plastic packings for ordinary use, metallic packings for high temperatures and pressures, specialized packings for particular installations, seals for revolving and reciprocating shafts.

Featured will be the Garlock Klozure, an advanced steel-encased sealing element for revolving shafts. The Klosure is made in a number of styles to meet a wide range of operating conditions.

Another presentation will be Garlock Chevron packing, a composition development of specific form for sealing liquids and pressures on reciprocating shafts. This, too, is offered in a variety of types and compositions to meet ordinary and unusual circumstances.

Gaso Pump & Burner Manufacturing Co.
Tulsa, Okla.
South half Lot "W"
In attendance
T. J. FLANAGAN M. J. FLANAGAN
L. D. ARMSTRONG H. F. STOVER
T. H. FLANAGAN G. W. DREYER
H. A. WIENECKE, JR. R. L. JAEGER
IRVING C. HUGHLETT
RUSSELL PEOPLES

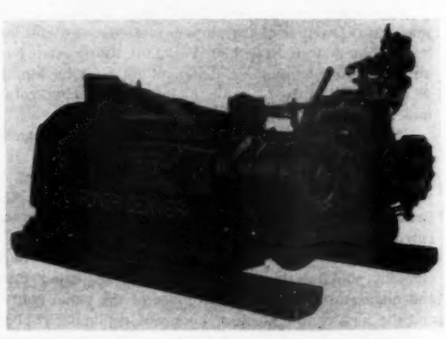


Will show a line of Duplex Piston, Horizontal Power Pumps in units, driven by diesel engines, gas and gasoline engines and electric motors, introducing a new 12-inch stroke high-pressure large capacity power pump for pipe line service, driven by a combination gas and gasoline engine.

Gardner-Denver Co.
Quincy, Ill.
Continental Supply Co., Block 6
In attendance
R. J. MacFARLAND R. J. BAUER
R. L. McLAIN J. A. VAN DOORN
R. C. HANSON

Exhibiting:
14 by 14 horizontal drilling engine.
9½ by 8 vertical steam engine belted to a 7¾ by 16-inch.
7¾ by 20-inch power pump.
12 by 9 Class RX horizontal compressor with top motor mounting.
Special surge chamber model display.

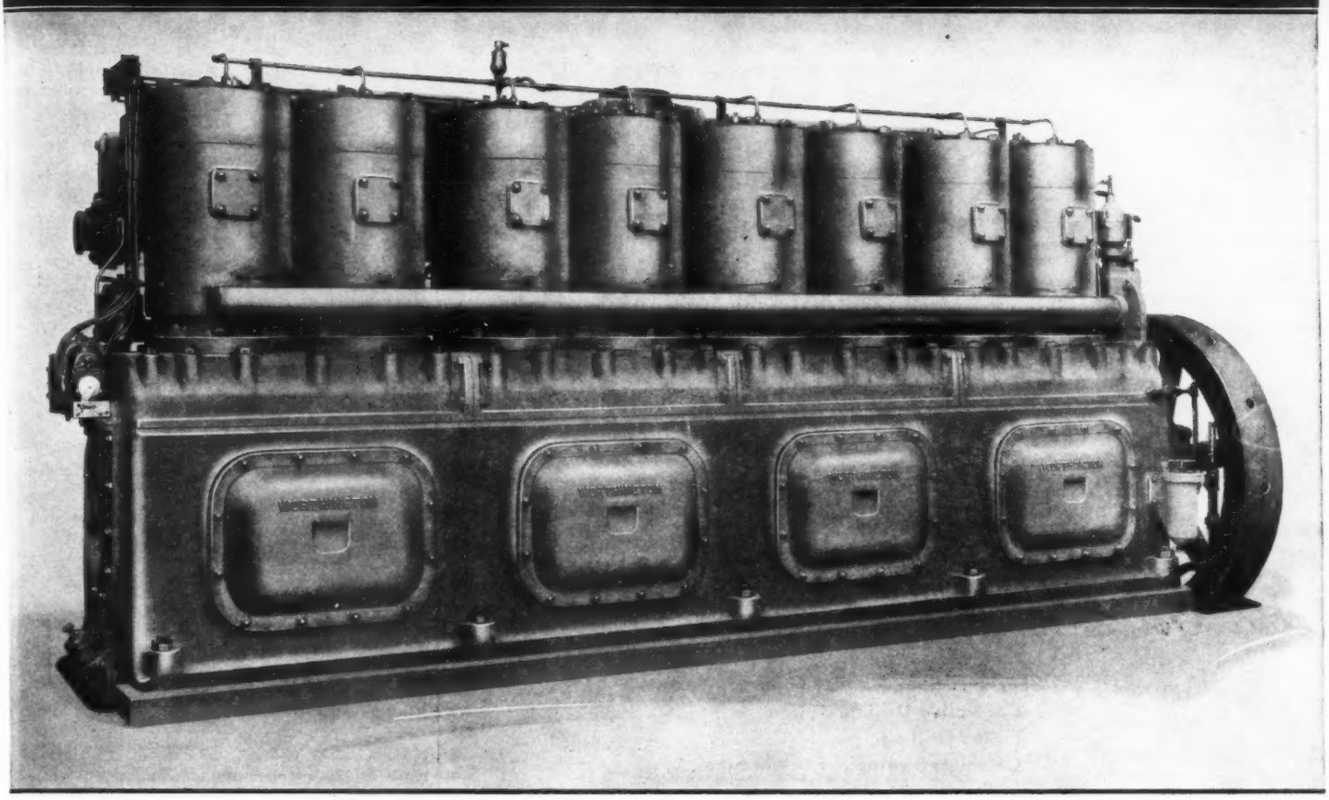
The new Gardner-Denver 7¾ by 20-inch power pump is the largest power pump made today for deep-hole drilling. It will duplicate the capacities and pressures that are now obtained with a 20-inch steam pump. The power end of the new pump is suitable for 400-hp. input



continuously. The pump is fitted with the well-known Gardner-Denver divided fluid cylinder, there being no inner baffles to cut out. Three-way suction opening and automatic surge chamber are also features of the pump.

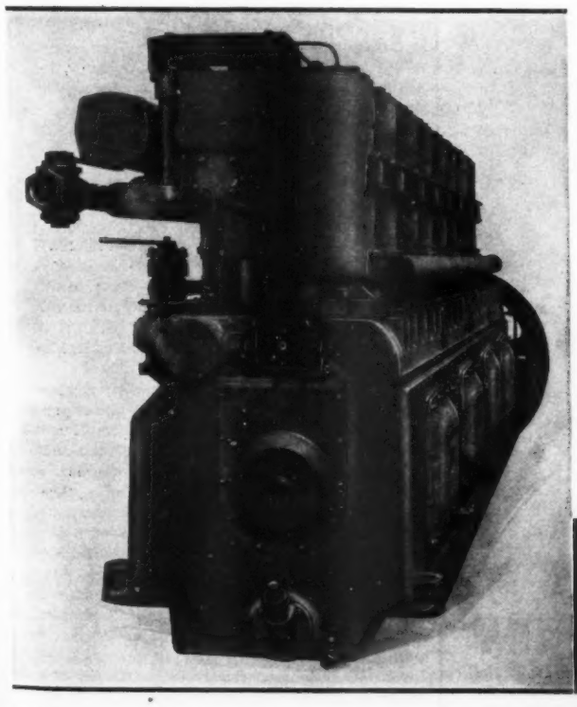
The new Gardner-Denver 14 by 14 horizontal drilling engine is designed for fast operation with ample power for the deepest drilling that is now encountered or immediately anticipated. The steam cylinders of the engine are made of close-grained iron, strongly ribbed and recommended for 400-pound steam pressure. Balanced piston type steam valves with renewable bushings, heavy duty strongly ribbed pistons, force feed lubrication to the cylinder and steam inlet manifold, alloy steel forging (ground and polished) piston rod and

The Type **LPE** Vertical Gas Engine



Sizes: 180 hp. • 270 hp. • 360 hp. . . *Cylinders:* 4 • 6 • 8

. . . the latest addition to Worthington's well-known and extensive gas engine line. It is a power unit arrangement of the popular Worthington Type LCE Gas Engine Compressor Unit . . . and all component parts, except the main frame, are interchangeable between the two units.



- Straight-line cylinder arrangement . . . maximum accessibility . . . less cylinder wear . . . equal intervals between power impulses, give smooth operation with small flywheel. Single magneto can be used for all cylinders.
- Full circulating pressure lubrication.
- Direct cylinder lubrication . . . less wear.
- Totally enclosed . . . dust- and moisture-proof.
- Large doors both sides . . . full access.

Oil Exposition INTERNATIONAL PETROLEUM EXPOSITION TULSA MAY 14-21

WORTHINGTON PUMP AND MACHINERY CORPORATION
General Offices: HARRISON, NEW JERSEY
Branch Offices in Principal Cities throughout the World

WORTHINGTON

full metallic packing on steam cylinder and oil stop head in crankend are features of the new drilling engine. Additional features include a rugged, one-piece casting power frame, alloy steel forging crankshaft and connecting rods, alloy steel casting crosshead with adjustable leaded bronze shoes.

Gates Hardware Company
Tulsa, Okla.

13 Skelly Drive, Outside Space

In attendance

F. E. GATES — W. C. GATES
G. H. GATES — F. R. BROOKS
A. W. COULTER — C. E. DE VERSE
H. E. FITZER — R. M. GUMP
C. R. PENDLETON — F. C. ROBBINS
C. B. CHANCELLOR — T. L. ROBBINS

Exhibiting oil field and machine shop hardware including Crescent tools, Greenfield tools, Mac-It screws, Lufkin tapes and rules, Eveready Prestone and batteries, Fox shovels, Texaco roofing, Yale and Master padlocks, Plumb and Kelly axes, Pennsylvania lawn mowers, Allen oil field cans, Trimo and Ridgid wrenches, Erie vises, Simplex jacks, Delta and Ecolite lanterns, Tru-Temper steel goods, Toledo pipe tools, Spartan and Atkins saw blades, Disston saws, Hall augers, Black & Decker power tools, Nesco galvanized ware, and Nicholson files.

This is an exhibit of regular hardware items used in the industry and the exhibit is more in the nature of general advertising rather than technological advancement—the company basing its chief claim on oil company business upon unusual service.

The Gates Rubber Co.
Denver, Colo.

56 and 57 California Building

In attendance

M. S. JEFFREYS — TOM WHITE
L. C. DOOLITTLE — FRED CRAIG
T. D. WILLIAMSON — T. SESS
E. DAVIS

The exhibit will consist of animated display machines showing Vulco rope drives, industrial hose, molded rubber goods.

Gatke Corp.
Chicago, Ill.

23, 24 and 25 California Building

In attendance

THOMAS L. GATKE — J. D. JOHNSON, JR.
L. W. BOSWELL

Will display a complete line of moulded and woven friction materials for every application in the oil fields—namely, moulded clutch blocks, pulling winch blocks, deep-well woven brake lining, V-type moulded cones, hot oil packing, asbestos sheet packings, asbestos sheet

Upper left shows a roll of Gatke deep-well woven lining; upper right, Gatke mounted clutch blocks; lower, Gatke woven and moulded brake blocks

gaskets, steam packings. In addition, the company will show its line of non-metallic bearings and automotive brake materials.

Gearench Mfg. Co.
Houston, Tex.

36 and 37 Texas Building

In attendance

C. E. OLSEN — W. T. OLSEN
M. T. KAPPELE

Will exhibit both the PETOL and TITAN line of oil field tongs and specialties. The company manufacturers 25 different types of tongs and more than 225 different sizes. The latest addition, PETOL and TITAN reversible chain tongs, will be featured. The company manufactures the most complete line of tongs in the world, and is able to take care of the requirements of the various branches of the oil industry, including drilling, producing, refining, pipe lining, plumbing and the machine shop.

General Electric Co.
Schenectady, N. Y.

100, 101, 116, 117 Kansas Building

In attendance

W. G. TAYLOR — R. L. SMALLMAN
L. T. BLAISDELL — R. T. SHEILS
G. R. PROUT — C. A. MAAS
F. B. HATHAWAY — R. RANDALL
J. T. HOCKADAY — G. W. CURRY
A. L. JONES — E. F. PATTERSON
R. G. SMITH

Features of the display will be a cut-away mechanical-drive turbine and a 25/17/10-hp. splash-proof well-pumping motor. Other G-E products of particular significance to the petroleum industry will include: 5-hp. explosion-proof motor with explosion-proof control; time-switch for automatic pumping; vertical, three-phase transformer; voltage regulator; 5-kw. Turbolite unit; Thyrite meter protector; explosion-proof push button station; various instruments; fractional-horsepower explosion-proof motor for gasoline pump. Possibly a mercury-incandescent floodlighting installation for filling stations will be displayed. If space permits, there will also be an exhibit of a 250-hp., 3,600-r.p.m., 440-volt motor.

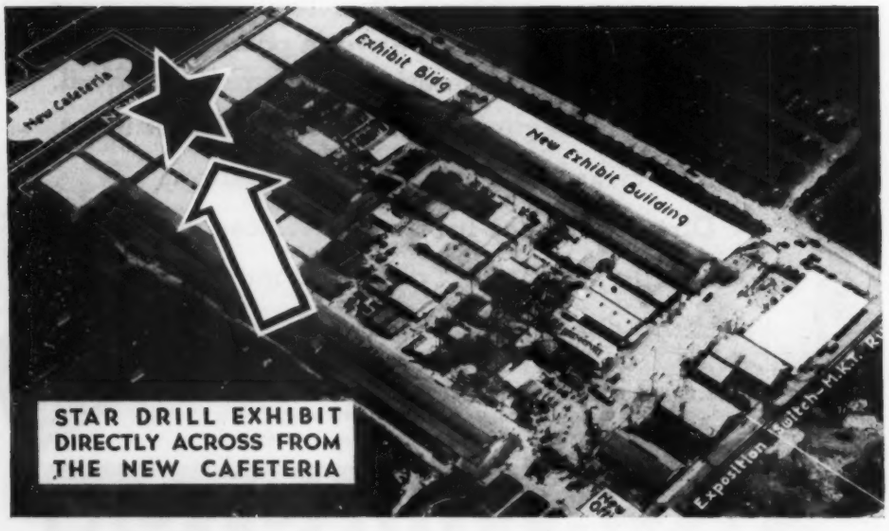
There will be a special operating display of a rapid-reversing motor which reverses 24, 48, or 72 times per

A Star Is Born

See It First At The Tulsa Oil Show . . .

★ **Shockless Spudder that Gives**
Controlled Drilling Action
Faster Drilling
Complete Protection to Machine
Longer Line Life
Insurance Against Fishing Jobs

★ **Steel Arc-Welded Construction Throughout**
★ **100% Anti-Friction Bearings**
★ **Free-Running, Chain-Driven Reels**
★ **Air-Cooled Brakes**
★ **Telescoping Mast, Carried on Machine**
★ **High Speed Moving on Pneumatic Tires**
★ **Quick Rigging Up**
★ **. . . and a Host of Other Features.**



THE STAR DRILLING MACHINE COMPANY
AKRON, OHIO ★ ★ ★ BRANCHES Chanute Kansas — Abilene Texas — Portland Oregon

minute continuously. This demonstration will be included with several other performances from the G-E "House of Magic."

General Paint Corp.
Tulsa, Okla. and San Francisco, Calif.

38 and 39 Texas Building

In attendance

W. D. TEUBNER — K. J. KEATING
AINSLIE PERRAULT — R. M. GUNN
R. H. NACKERUD

Featuring paints for the petroleum industry and the Hill, Hubbell Process of mill coating and wrapping steel pipe; also, Biturine Multi-Coat Lining of the interior surfaces of steel pipe for carrying water.

The exhibit is designed to bring to the attention of the public the various types of paints manufactured at Tulsa, Okla., for use by the oil companies, both in the marketing and production departments. Miniature oil field tanks, gas separators, derricks and other oil company properties will be displayed.

Of special interest will be a 10-foot section of 8⅝-inch steep pipe, which has been mechanically coated and wrapped on the exterior with a bituminous coating and asbestos pipe line felt, symbolic of the work done by the company at the various steel mills where this protection is applied.

One of the latest developments in the protection of steel lines for water is the use of a hot coal tar coating applied to the interior surface of the pipe to a thickness of approximately one-sixteenth inch. This work is also done at the steel mills, indoors, under the most ideal conditions.

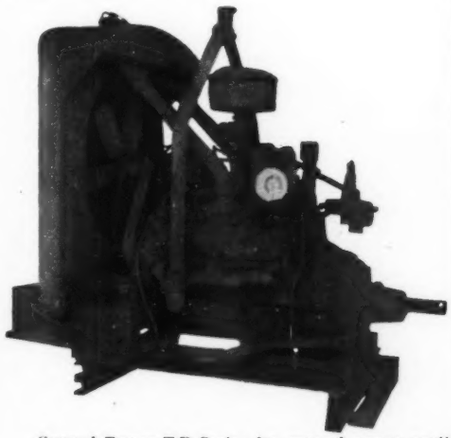
General Power, Inc.
Quapaw, Okla.

Skelly Drive

In attendance

A. J. ROOT — G. B. KINDER
WM. M. THOMAS — ROBERT ROOT

Exhibit will consist of power conversions of Ford V-8 engines in single, dual, triple, and multiple units, for drilling, pumping, and generating purposes. General Power generating units, gasoline and gas powered, and power conversion kits.



General Power T-B Series for general power applications. Has the large truck clutch. The power take-off shaft is mounted on twin bearings spaced 3¾ inches apart to aid in resisting side pull from belts. The ideal unit where it is desired that belts be removed easily. Floor space 27 inches wide, 49½ inches long. Burns natural gas or gasoline.

George Valve Company
Saegertown, Pa.

3 Kansas Building

In attendance

MR. REICHEL — MR. GOLDSMIT
MR. SIFKOWITZ

The George tank car outlet valve is an entirely new type valve designed to eliminate the hazards and expense encountered in the use of the ordinary tank car valve. It is made of virgin bronze throughout, and therefore cannot corrode; and as it is bronze to cast iron, the housing can be removed easily, if necessary. This patented product utilizes a rubber composition envelope which protects the valve when it is in open position, and wipes the valve seat, thus stopping leakage and its attendant losses. The valve is opened and closed on a swivelable joint free of any stem-leverage, preventing the stripping of threads or injury to the seat. This combination of bronze material, independent and easily removed parts,

and the new design of valve seat, which shoves back scale and prevents foreign substance from entering the valve and valve seat, eliminates losses from broken valve housings, sampling waste, leakage, and dome unloading.

Gilbert & Barker Manufacturing Co.
Springfield, Mass.

84 and 85 Kansas Building

In attendance

K. S. EDWARDS — W. C. LEITCH
W. M. HARKS — R. L. FAUBION

The display will consist of a modern, rich background in blue and white color scheme. A miniature service station of modern-day trend with four miniature models of the latest Gilbarco Calco-Meters will be built into the background. There will be actual size models of the latest Calco-Meters showing the interior features as well as the outside lines. A new 1½-hp. Gilbarco air compressor also will be shown. Other models are available ranging from ½ hp. to 5 hp. Another section of booths will be given over to the new, improved Gilbarco grease equipment, a 25-pint

(Continued on Page 230

√ √

DOUBLE-CHECKED

FOR TIGHTNESS

Each of the seven specialized types of Hough Balls and Seats is vacuum-tested to *prove* tightness, and *guaranteed* to be absolutely tight.

FOR HARDNESS

Every Hough heat-treated Seat is checked for hardness by the Rockwell Hardness Testing Machine. You can be *sure* that each hardened seat is uniformly heat-treated.

HOUGH *Specialized* BALLS & SEATS

In stock at your oil-field distributor's.

("REPELEX" AND SIX OTHER SPECIALIZED TYPES)

See Our Exhibit
INTERNATIONAL PETROLEUM EXPOSITION
TULSA
MAY. 14-21

THE CHARLES N. HOUGH MFG. COMPANY
Franklin, Pa., and Tulsa, Okla.

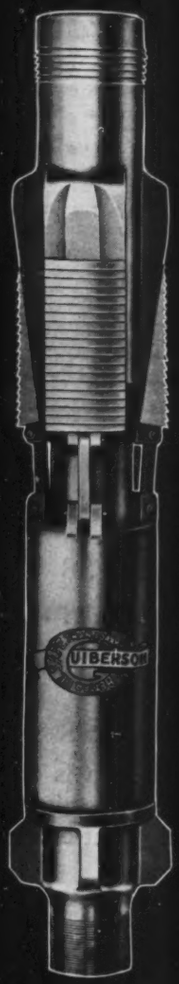
★APPLYING *Reilly*

PIPE ENAMEL AND PRIMER

For the permanent protection of oil and gas transmission lines against corrosion, REILLY PIPE ENAMEL and PRIMER has proved its complete dependability. Even through wide extremes of temperature, Reilly coatings remain bonded to the steel. Write for the booklet on Reilly Protective Coatings.

REILLY TAR & CHEMICAL CO.
Merchants Bank Bldg., Indianapolis, Indiana
15 PLANTS TO SERVE YOU

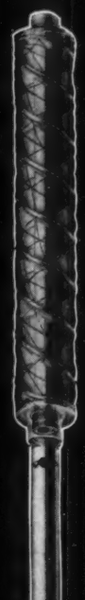
You've Read ... You've He



Type E
Tubing Catcher.
Pat.

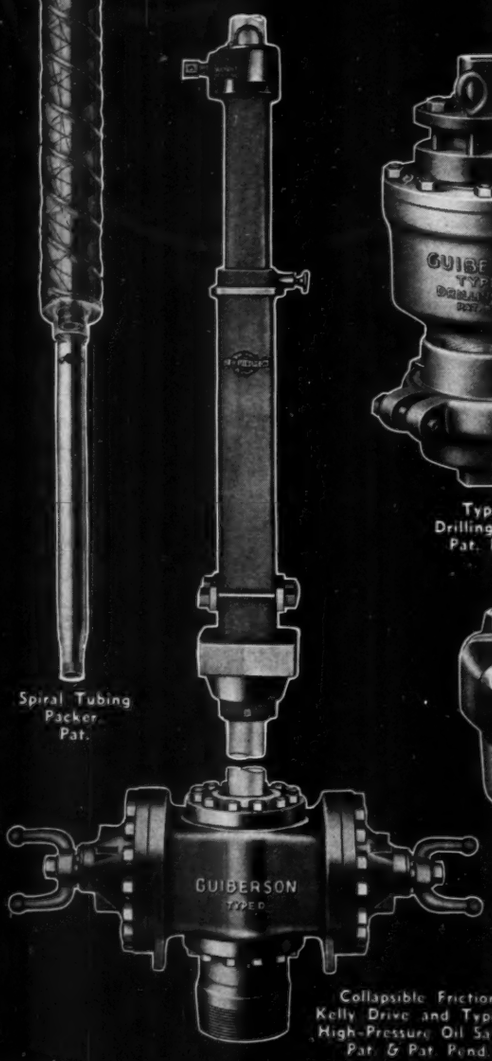
Type K
Casing Swab.
Pat.

Type G-2
Control-Head Packer.
Pat.

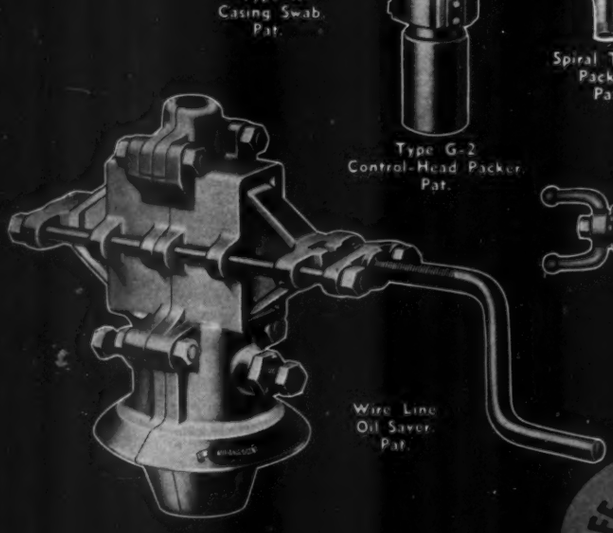

Spiral Tubing
Packer.
Pat.

Type E
Drilling Head.
Pat. Pend.

Sucker Rod Stripper.
Pat. Pend.



Collapsible Friction
Kelly Drive and Type D
High-Pressure Oil Saver
Pat. & Pat. Pend.

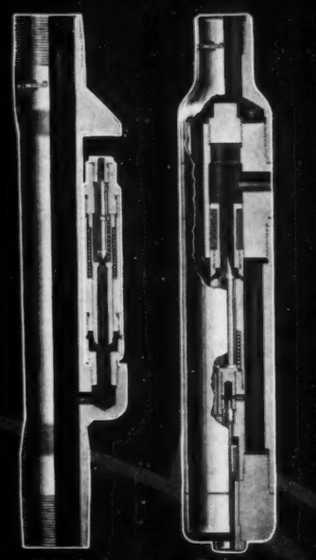

Wire Line
Oil Saver.
Pat.

BETTER BE SAFE THAN SORRY
UIBERSON

GUIB

about them
eard about them

now SEE them
at the
TULSA SHOW
OKLAHOMA BUILDING
Booths 216-18, 233-35



Type B Flow Valve. Pat.

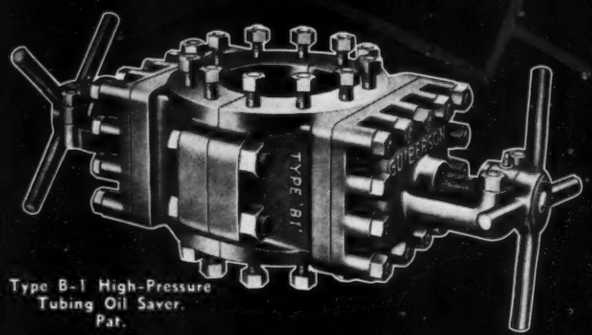
Type A Intermitter Valve. Pat. Pend.

WHILE attending the International Petroleum Exposition, you are cordially invited to see the GUIBERSON Exhibit in the Oklahoma Building, Booths 216, 217, 218 and 233, 234, 235. Here will be displayed our complete line of patented oil well specialties.

Of special interest will be our new GUIBERSON High-Pressure Rotary Pump, introduced this year,—which will be shown in action. This new pump meets the need for high efficiency over a wide range of speeds and pressures. Its money-saving features include: Direct drive, without gears: Fewer wearing parts; Less Packing; Adaptable for gasoline or Diesel engine or electric drive; High efficiencies up to 600 pounds or more; Operation at sustained high speed; Non-pulsating discharge; No trapping.

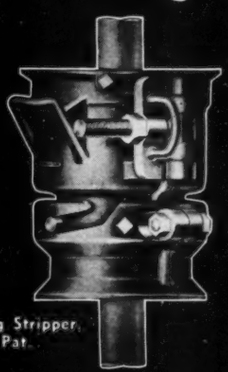
Don't miss the Exposition—or the GUIBERSON Display!

THE GUIBERSON CORPORATION . . . Box 1106, Dallas, Texas
Export Office: 30 Rockefeller Plaza, New York.

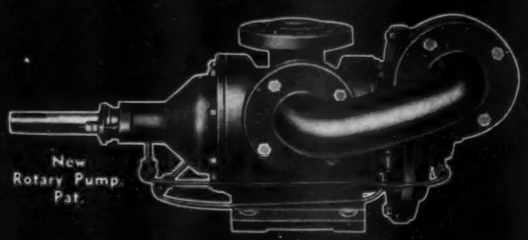


Type B-1 High-Pressure Tubing Oil Saver. Pat.

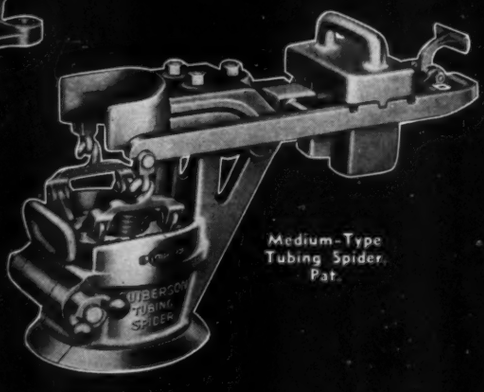
Type B Floor Block.



Tubing Stripper. Pat.



New Rotary Pump. Pat.



Medium-Type Tubing Spider. Pat.

BERSON

"Greaserver" and a 100-pint "Greaserver" drum adapter will be on display.

The company also manufactures a complete line of "Gilbarco" oil heating-air conditioning equipment for both winter and summer use. Its long experience in the petroleum industry positively places it as a leader in this field as well as that of equipment for service stations. One of the heating products gaining tremendous popularity is the Gilbarco "Sachem" circulating space heater which comes in six models, ranging from 3,000 cubic feet to 14,000 cubic feet. A medium sized model will be on exhibition.

L. H. Gilmer Co.

Tacony, Philadelphia, Pa.

47 California Building

In attendance

A. B. MacFARLAND D. A. CANT
C. P. WILLIAMS FRED SINTES, JR.

A line of V-belts accurate in length according to the brand symbol will be featured by the L. H. Gilmer Co. Exceeding A.P.I. specifications, these belts, it is claimed, assure the indicated length at working tension regardless of the Gilmer stock from which the belts are drawn, whether from local stocks or the factory. Installed in sets, they result in a drive of matched V-belts.

An oil-resistant process will also be offered, available for both Gilmer V-type and Kable Kord flat belting. This construction increases the life of the belt over ordinary construction, in the presence even of a severe oil condition, by 100 per cent. As this protection is built into the structure of the belt, the joints of connected lengths of Kable Kord are secure against attack from oil, making the belt practically equal in effectiveness to an oil-resistant endless belt.

Geuder, Paeschke & Frey Co.

Milwaukee, Wis.

4 Refiners and Marketers Building

In attendance

A. J. CHAMBERLAIN H.P. THELEN
W. T. TRASK G. HARRINGTON

The exhibit of the Steel Package Division will consist of a display of the various types of pails and drums together with newly developed auxiliary packages and the latest advancements of pouring equipment. It will place particular emphasis on the new Pour-Rite Spout to be used in pails and drums and hot galvanized 3½-gallon Fun-l-can. The Fun-l-can has been developed so that it now holds oil besides the grease which was its original idea.

Fun-l-can

Globe Oil Tools Co.

Los Nietos, Calif.

31 Texas Building

In attendance

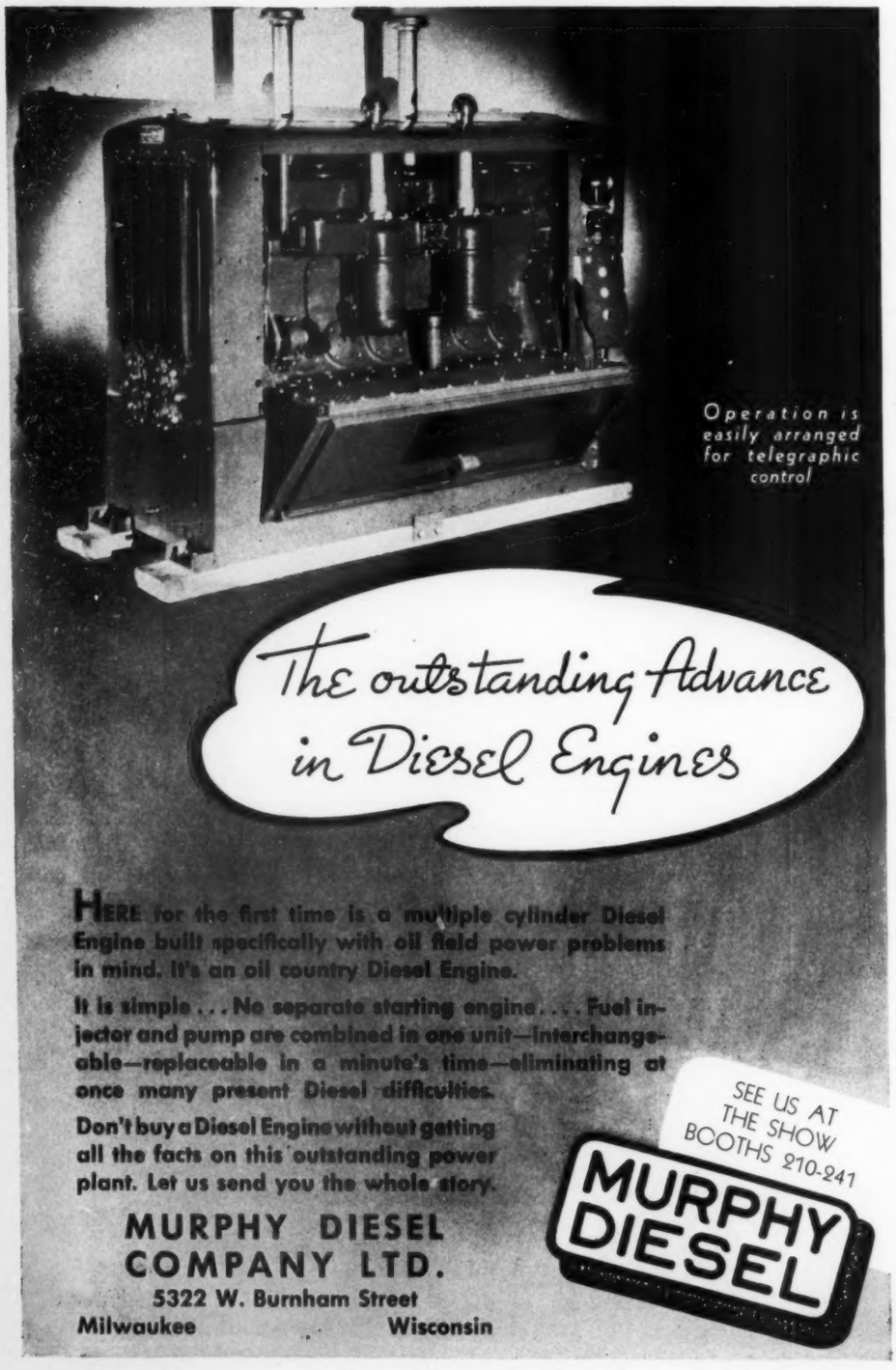
L. C. BODEMANN C. D. BURGESS

Equipment exhibited:

Globe rock bit.
Globe pin and box type bits.
Globe W-K-W Type B-3 drilling bit.
Globe W-K-W Type M-5 drilling bit.
Globe Type D redrill bit.
Globe rotary underreamer.
Globe hard and soft formation coring equipment.

The recently added three-way, pin type and fluid action bits that have been added to well known Globe drilling bits will be on display for the first time.

Another new product prominently displayed is the Globe Type H roller bit. This bit features strength and compactness, and sets a new standard for rock bit construction, as the great rigidity and strength obtained could not be secured by conventional assembly methods. Heretofore, roller bit designers have made use of a center yoke piece, comprising the inner supports for the gauge cutters, and the center support for the long inside cutters, and this inner yoke assembly has been held in place by the cutter pins from the four fingers on the circumference of the bit body. In the new Type H roller bit this "floating" yoke has been done away with by making the inner supports on the gauge cutters integral with the body, and by fastening the center support for the inside cutters directly into the bit body by a threaded member. Thus, instead of all of the load on the cutters being carried by the four outside fingers


Operation is easily arranged for telegraphic control
The outstanding Advance in Diesel Engines
HERE for the first time is a multiple cylinder Diesel Engine built specifically with oil field power problems in mind. It's an oil country Diesel Engine.
It is simple . . . No separate starting engine . . . Fuel injector and pump are combined in one unit—interchangeable—replaceable in a minute's time—eliminating at once many present Diesel difficulties.
Don't buy a Diesel Engine without getting all the facts on this outstanding power plant. Let us send you the whole story.
MURPHY DIESEL COMPANY LTD.
5322 W. Burnham Street
Milwaukee Wisconsin
SEE US AT THE SHOW BOOTHS 210-241
MURPHY DIESEL

Don't put a brake on PROFITS

with this Self-Imposed UNFAIR TAX

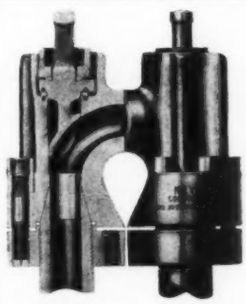
Wastage, interrupted production, excessive down time and even property destruction caused by faulty Return Bend Fittings . . . these are *all* forms of self-imposed maintenance taxes which play havoc with production schedules and operating costs. They are just as real and are equally as oppressive as any other form of confiscatory taxation.

Refineries that have installed KEY FITTINGS are exempt from this excessive maintenance tax. KEY FITTINGS reduce maintenance costs. . . . prevent leakage and pressure losses. The savings provided by Key Fittings reduce operating costs, placing the refinery in a more favorable competitive position in the industry.

• • •

Get the facts. Write today for details on Key economy installations.

Users of KEY FITTINGS pay no maintenance tax.

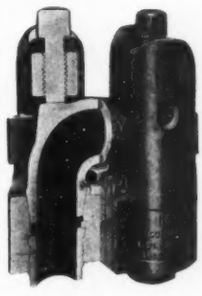


High Temperatures
High Pressures

Key offers a complete range of "performance-proved" specially designed fittings for high pressures and high temperatures. Key Engineers will be pleased to work out specific applications with you. *Write.*

KEY SERIES 3600
Return Bend Fittings

—are of U Bend construction to provide an unrestricted flow of the oil, decrease pressure drop to a minimum throughout the coil, eliminate turbulence and thus prolong the life of Fittings and tubes. Removable feature provides easy access for tube cleaning and inspection. Adaptable to any furnace design.



KEY COMPANY

2681 McCasland Ave. **East St. Louis, Ill.**

only, as in conventional designs, each of the inside, as well as the outside, members contribute their share to the support of the cutter, giving a much stronger and more rigid assembly. The cutters are generously hard faced and are shaped to cut a high center in the bottom of the hole, thus guiding the bit and keeping the hole straight.

Grant Oil Tool Co.
Los Angeles, Calif.

257 and 258 Oklahoma Building

In attendance

JOHN GRANT GEORGE H. SHETLIN
NORMAN WEST

The full and complete line of Grant tools, will be exhibited, including: Grant single 3-point and double 3-point reamers, soft and hard formation underreamers, 2- and 3-plate wall scrapers, hydrostatic bailers and cleaners, steel hose, cement heads, line hangers and pullers, etc. A number of these tools will be cut-out models, demonstrating the actual working parts and the manner in which they operate. Grant's new wall scraper and the new cement heads will be the features of the exhibit.

The Guiberson Corp.
Dallas, Tex.

216-217-218-233-234-235 Oklahoma Building

In attendance

S. A. GUIBERSON, JR. H. M. HASELTINE
ALLEN GUIBERSON H. U. GARRETT
GORDON G. GUIBERSON J. C. OWEN
ALBERT PRANGER IRVING H. BUCK
M. H. FRENCH R. E. KENNGOTT
G. P. THOMSON

Complete list of tools to be exhibited: Swabs—Types K, E, A, H, and F; and plain and swivel rope sockets; Wire line oil savers; Sucker rod strippers; Tubing catchers—Types E, B, and C; and tubing catcher anchors; Tubing spiders—heavy and medium; Floor blocks—Types A-1 and B; Control head packers—Types C-1, G-1, G-2, GT, GL, and GA; Valveless packers—Types F and H; Spiral tubing and casing packers, and Spiral bottom water plugs; Equipment for tubing wells under pressure: Tubing strippers; Type B-1 oil saver; Type C-2 oil saver; Type D oil saver.

Equipment for Drilling in Wells Under Pressure: Types A and B friction Kelly drives; Type E drilling head; Tubing strippers; Type B-1 oil saver; Type C-2 oil saver; Type D oil saver. Gas lift equipment: Type B flow valve; Type A intermitter. P.L. rotary high-pressure pump.

New equipment to be exhibited:

Type E drilling head: This new drilling head was designed for use in drilling in wells under pressure. The construction of the rubber is such that it packs off around the standard square kelly while drilling

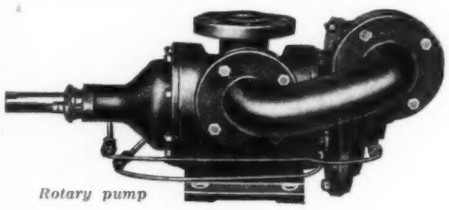
Type E drilling head

and around the drill pipe and its collars when the drill stem is being run in or removed from the well, thus eliminating the necessity of using two separate tools for this purpose. The drilling head is designed for working pressures up to 1,500 pounds and is provided with gland adjustment for taking up for wear.

Rotary Pump: The new high-pressure rotary pump meets the demand of oil field engineers and superintendents for a pump with high efficiency over a wide range of speeds and pressures. Among the advantages of this pump are:

1. Direct drive by motor or engine, eliminating reduction gears or V-belt drives.
2. Minimum amount of wearing parts.
3. Only one stuffing box.
4. High volumetric and overall efficiencies at pressures to 1,000 pounds or more.
5. Operation at sustained high speeds and pressures.
6. Non-pulsating discharge.
7. No trapping.
8. Light weight and portability.

Types C-1 and G-2 Packers: The addition of these two new packers to the corporation's already very extensive line of packers gives the corporation the most complete line of packers available. The C-1 packer is of the single Neoprene rubber sleeve type, and the



Rotary pump

G-2 is of the double Neoprene rubber type. Both packers have dovetailed, extra large, heat-treated alloy steel slips. The packer assembly on both packers is interlocked together with the anchoring device, which feature guarantees the holding open of the control valve when running in.

Type H Packer: The Type H packer is similar to the company's Type F packer except that it has certain improvements incorporated such as dovetail slip arrangement, and it has the same anchoring device as is used on its well-known Types C-1 and G-2 packers. This packer is therefore suitable to be used on wells of any depth where the control head feature is not required. However, as on the Type F packer, this packer can also be equipped with a relief valve with fishing neck which allows the fluid and sand to drain back to the bottom of the well through the tubing.

Gulf Oil Corporation
Pittsburgh, Pa.

105 Kansas Building

The Gulf exhibit will dramatize the achievements of Gulf products during the past year in setting outstanding speed and endurance records. These include Ab Jenkin's achievement in breaking 87 racing car records and 72 American stock car records; Bob Sall and Frank Beeder breaking many dirt track records; Rudy Kling winning honors at the National Air Races, and Ken MacKenzie with the Class F outboard motor boat record. Gulf is proud of these records and is able to dramatize them effectively. At the Gulf exhibit, visitors will be enabled to win a prize by a very unique guessing contest. Don't fail to visit the Gulf booth to learn about this guessing contest.

Gulf Publishing Co.
Houston, Tex.

Block 8

Gustin-Bacon Manufacturing Co.
Kansas City, Mo.

Goodyear Tire & Rubber Company
Akron, Ohio

192-193-194-195 Oklahoma Building

In attendance

J. F. STEPHENS M. SHIELDS
J. N. SAWYER V. F. HALLIBURTON
J. R. HIGGINS F. L. MYERS
W. W. JONES CHARLES WHEATLEY
N. A. WILSON H. E. BURTNER
H. M. STONE F. P. MONAHAN
S. M. BLEVENS DARREL CHANEY

Halliburton Oil Well Cementing Co.
Duncan, Okla.

Block K (Halliburton Oil Well Cementing Co. Building)

In attendance

C. P. PARSONS, in charge.

Representatives from all Halliburton districts.

Description of exhibit: F. W. D. Trucks; Halliburton Oil Field Trucks; Acidizing service; Cementing service; Cement wash-pipe lining; Co-Axial spiral; Floating equipment; Formation testing; Measuring devices and accessories.

Hanlon-Waters, Inc.
Tulsa, Okla.

83-84-85-126-127 and 128 Texas Building

In Attendance

M. F. WATERS CHES HERNDON
L. J. GRIFFEY E. L. HAGAR
R. M. HAYS A. J. FOLEY

American Air Filter Co.
Louisville, Ky.
84 Texas Building
In Attendance
W. K. GREGORY H. M. FITCH

American Liquid Meter Co.
Alhambra, Calif.
126 Texas Building
In Attendance
FRED FARMER

Victaulic Co. of America
New York City
85 Texas Building
In Attendance
W. B. DAMSEL

Of particular interest in the Hanlon-Waters booth is the 2,500-pound separator, fully equipped with all valves and regulating devices to control the liquid level and pressure on a separator of this working pressure.

The boiler control unit for oil field gas-fired boilers shows a complete unit for controlling the gas pressure to the boiler gas fuel governor, the boiler gas fuel governor for controlling the flow of gas to the burners, and the stack blower valve for controlling the steam through the stack blower. This unit is sturdily built on a skid for easy handling from one location to another.

The time control unit on display shows a timing device which can be used for the intermittent lift of oil on oil wells, or a unit which can be used for flowing wells for a certain period each day.

Refinements are also shown on pressure pilot controllers in our line of automatic control equipment.

The American Liquid Meter Co. display shows a cross-sectional device for accurate measurement of liquid, also a meter which will correct the reading from the flowing temperature back to 60° F.

Victaulic Company of America has working models demonstrating the effectiveness of the Victaulic coupling, not only sealing the pipe joints against leakage but allowing for contraction and expansion of the pipe under working conditions.

The American Air Filter displays a complete range of sizes of the new Cycoil air filter. This filter, of the oil bath type, demonstrates a new and effective use of oil for cleaning the air on engine intake. For larger installations they also demonstrate their Unimatic air filter, which combines an air filter and cleaning tank in the same installation.

Happy Belting Co.
Tulsa, Okla.

West End Block No. 8

In attendance

PAUL MAHAFFEY A. F. NIXON
R. C. LINDLEY A. M. BUTCHER
W. H. GOREY L. C. KING
E. P. HUGILL A. L. OLIVER

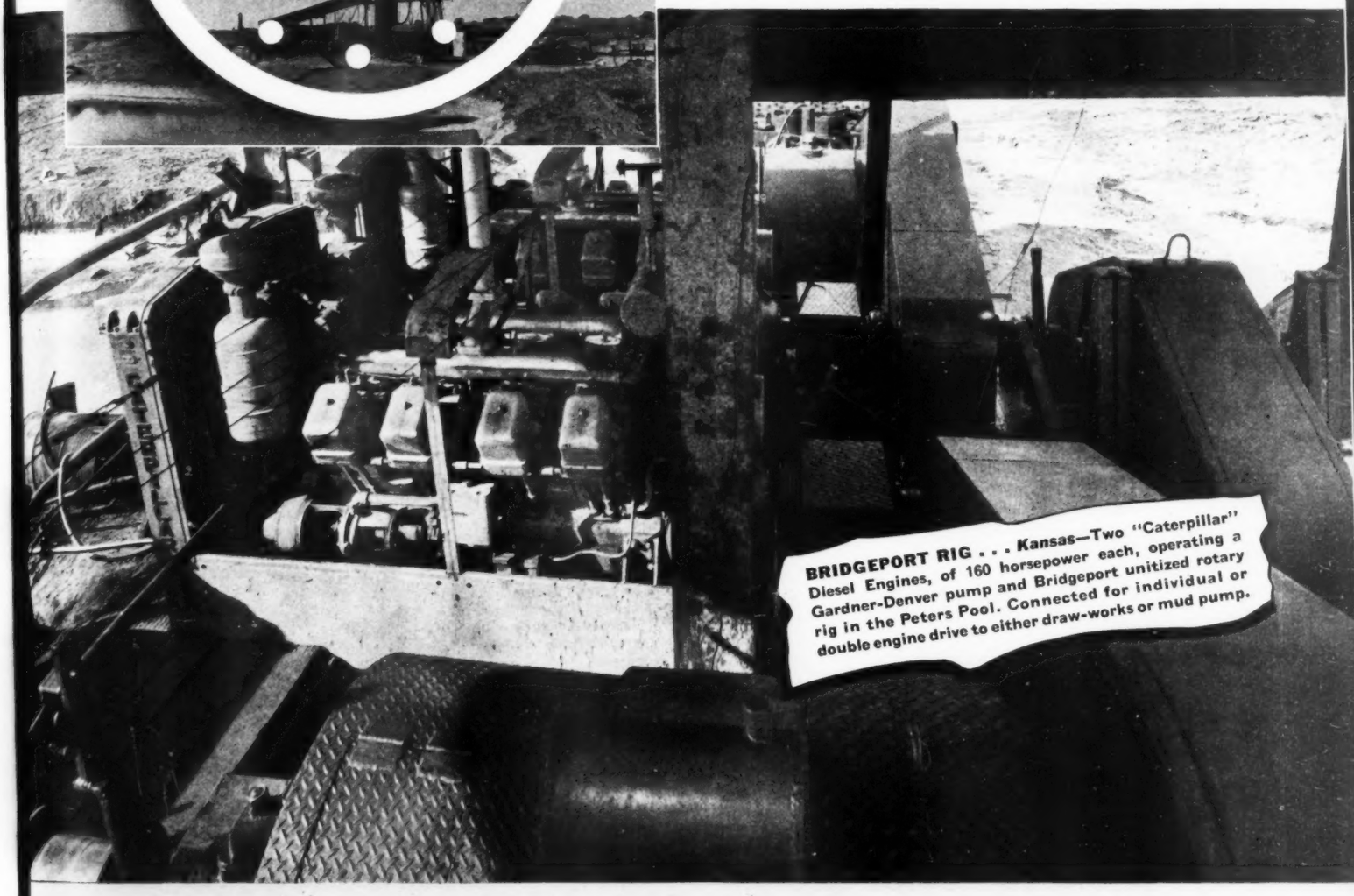
The Happy Belting Co. will have on exhibit for the first time at the Oil Show its new line of Happy pumpers. These are made in both single and double reduction and are chain driven. The principal features of the Happy pumpers are that both the single and double reductions are built in heavily ribbed gray cast iron cases and the main shafts are supported by long plain bronze bushed bearings, giving full support to the crankshaft.

The single reduction unit, T-100 series—30, 40 and 50 horsepower sizes, are all interchangeable to the same case and on the same steel substructure, making it possible, when necessary, to go to a heavier or a lighter unit with a minimum expense. The T-220 and T-230 or double reduction series, are also interchangeable on the same steel substructure and in the same case.

The Happy demountable rim sheave was developed to make it possible to quickly change horsepower or reduction ratio of a drive and do it on the job with the

AROUND THE CLOCK

WITH "MAXIMUM FOOTAGE"



BRIDGEPORT RIG . . . Kansas—Two "Caterpillar" Diesel Engines, of 160 horsepower each, operating a Gardner-Denver pump and Bridgeport unitized rotary rig in the Peters Pool. Connected for individual or double engine drive to either draw-works or mud pump.

WHEN drilling a well is a race against time, there's no power like "Caterpillar" Diesel. Call on it for twenty-four-hour going on the drill rig, and, in the long run, it'll ask less time-out for servicing, adjustments and parts replacements than any other type of power you can employ.* Soundly designed, sturdily constructed, simple in operation, "Caterpillar" Diesel Engines are piling up extraordinary records of continuous, low-maintenance performance in oil-drilling power.

And when it comes to operating *economy*, "Caterpillar" Diesel power again is outstanding in comparison with other types of power. Through their small consumption of low-cost fuel, these thrifty engines are saving as much as two-thirds to three-fourths of former operating costs.

"Caterpillar" Diesel Engines offer still other advantages: They are compact and readily portable — easy to set up, easy to tear down, easy to move to next location. . . . And they raise no water problem, as with steam!

** When the need for service does arise, "Caterpillar" day-and-night facilities are never more than a few hours away. In fact, no other engine builder has so many points where a complete range of parts is quickly available.*

• • •

Leading manufacturers of oil-field and pipeline equipment power their products with "Caterpillar" Diesel Engines. Nine sizes — 32 to 160 horsepower.

INTERNATIONAL PETROLEUM EXPOSITION TULSA MAY 14-21

CATERPILLAR DIESEL ENGINES

REG. U.S. PAT. OFF.

CATERPILLAR TRACTOR CO., PEORIA, ILL.

least amount of trouble. The sheave is made in a number of different types.

The Happy cooler was designed and built to supply the demand for a high efficiency unit to cool the jacket water of oil field pumping engine and compressors. The complete unit consists of a radiator made up of round heavy-gauge wall seamless copper tubes, tested for leaks at 100 pounds hydraulic pressure. The round tubes eliminate to a great extent clogging under normal conditions. Operating on a closed system, rapid accumulation of scale and foreign matter in engine jackets and piping is eliminated.

Harnischfeger Corporation
Milwaukee, Wis.

Block L

In attendance

C. W. DANIELS — G. K. WOODLING
E. T. SLACKFORD — H. SCHMIDT
J. H. ENOCHS — R. L. SCOLLARD
J. M. MUCKELROY — D. B. DENNEY
C. POWELL

Exhibit will include the following:

A P&H Model 255 dragline, ¾-yard capacity. This machine is of the latest design. It is built throughout of alloy steels, welded. It has a lower ground

pressure than competitive machines of the same size and type, faster working cycles and, therefore, is a faster operating machine. It was the talk of the National Road Show in January and will be of extreme interest to the people attending the Oil Show.

A 300-ampere gas engine driven electric arc welder, a 200-ampere gas engine driven electric arc welder and a 200-ampere electric motor driven arc welder.

The gas engine driven welders will furnish the power for the demonstration of the P&H Smootharc welding rod. Demonstrations will be on types of metal fabricated and on pipe line welding which demonstrations will be presented so that in addition to seeing the actual welding process, those attending will be able to see the actual results. This is made possible by a newly designed welding booth which is closed during welding operation but which opens immediately when the welder ceases welding thereby leaving the materials welded and the materials used in welding open to direct inspection.

There will be a complete exhibit of the new Smootharc welding electrodes, the first and only electrodes on the market to be packed in hermetically sealed cans. A working exhibit of both Zip-Lift and "R" type hoists will be displayed. The company will also exhibit its electric motors.

Hart Welding Supply Company
Oklahoma City, Okla.

72 and 73 Kansas Building

In attendance

OTTO HART — VIRGIL B. CRANE
O. B. FULTON — J. M. KRISMAN

Display and demonstration of all types of Westinghouse Flexarc welders, manufactured by the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa.

Display and demonstration of Murex electrodes, manufactured by Metal & Thermit Corp., New York.

This company is exclusive distributor of these two lines in Oklahoma and Texas.

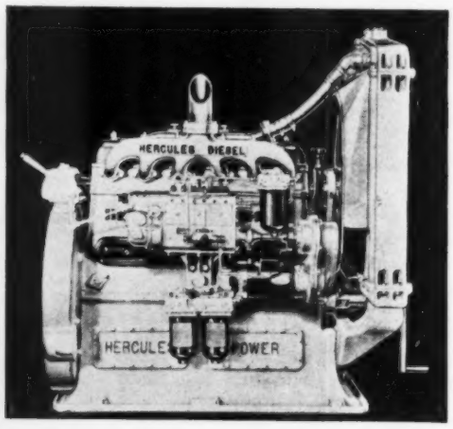
Hercules Motors Corporation
Canton, Ohio

76, 77, 78, 133, 134 and 135 Oklahoma Building

In attendance

CHARLES BALOUGH — A. B. WEHLING
JOHN KEPLINGER — F. C. GOLDSMITH
R. J. SCOTT — R. T. LEWIS
JOHN TIDBALL

Although the exhibit will consist of a very comprehensive display of the company's entire line of gasoline, natural gas and diesel engines and units, due to an



"DRXB" open type power unit

increasing interest in diesel engines for oil-field applications, some emphasis will be placed on the modern, heavy-duty, high-speed diesel engines manufactured by this company.

Its complete diesel line will be on display, including the "DOOC" 4 by 4½-inch four-cylinder complete power unit of the enclosed type, our "DJXC" 3¾ by 4½-inch six-cylinder power unit of the open type, our "DRXB" 4⅜ by 5¼-inch six-cylinder power unit of the open-type and our "DHXB" 5 by 6-inch six-cylinder power unit which will be shown in both open and closed types. These power units will be particularly interesting to visitors, since the units arranged in this manner are used in various types of oil-field applications. An interesting display of a "DJXB" 3½ by 4½-inch six-cylinder diesel engine, sectioned to show the internal construction, will also attract the attention of the visitors.

In addition to the diesels mentioned, there will be 14 or 15 engines and power units, especially arranged for oil-field applications. This lineup will include models in the "NX" series two-cylinder engines, which are the smallest built by Hercules, as well as several models in the large "HX" series six-cylinder engines, which are the largest now in production in Canton. Sizes and types falling within the largest and smallest will be arranged to different specifications for various types of applications; and among the engines which will be on display, several will be operated during the course of the Exposition.

Hercules Tool Co.
Tulsa, Okla.

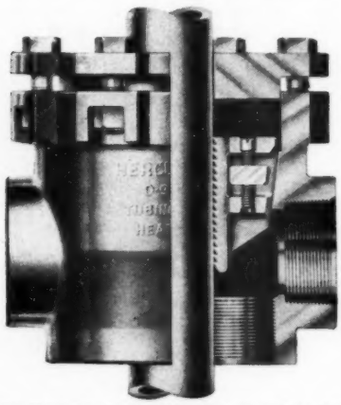
55 and 56 Texas Building

In attendance

S. P. TSCHAPPAT — HAROLD CALLAHAN
W. T. SWEARENGEN — JOE LALEY
L. C. RHOADS

The company will show its line of oil well specialties, including high-pressure and medium-pressure casing heads and tubing heads, tubing hangers, combination thread pumping and flowing tees, stuffing box, globe-relief valve, and engine-control valve.

A number of new Hercules tools will be displayed. This new equipment includes: Type AFC and FB combination casing head, which accommodates three strings of casing while making a very short hookup, and offers several convenient methods for drilling, cementing and connecting up a well. . . . The Hercules one-piece, full-opening Type D-9 tubing head, which is especially suitable for acidizing, and has special slips that can be operated by one man while running or pulling tubing. . . . The Hercules duplex polish rod stuffing box, which is "super-packed." This box introduces a new departure in the method of packing and the type of packing used. The packing arrangement consists of one inner gland, one outer gland, and four packing rings of a special fabrication. According to the manufacturer, the special packing has lasted from three to six months on wells where the conventional-type box previously required repacking every few days.



New Hercules Type D-9 cast steel tubing head, 2,500 pounds test

Hercules also will have installations of pumping and flowing well hookups.

Hinderliter Tool Company
Tulsa, Okla.

Block 1

In attendance

HERMAN B. HENDERSHOT — R. H. McKAY
M. J. CONLEY — A. L. STEWART
J. J. MIDDAUGH — JOHN J. OLIVIER
L. W. CHADDERDON — M. A. WESTON
GEORGE E. JUSTICE — CLARK C. WRIGHT
STEELE S. NEELY — L. B. NICHOLS
CHARLES A. HINDERLITER — W. P. POUND
CHARLES M. LAUDERMILK — L. L. McCOLM
J. G. RUSSELL — W. B. STARMER
F. J. WILBANKS — M. B. THOMPSON
R. C. WHALEY — F. T. HEAVNER
WILEY C. DAVIS

Exhibiting: Patented dual valve well pressure control designed for use in the process of running or pulling well tubing or well casing against well pressures, or setting liners, setting screens, running or setting packers, coring under varied conditions, drilling in under the pressure method, resetting tubing as well as reentering the well subsequent to completion without killing the well by mud or water. Adaptable for use with christmastree hook-ups of any design, drilling through valves or gate valves, etc., either flange or screw types.

Patented Three in One casing head hook-ups designed for lowering or removing of well tubing or casing under pressure without the loss of well pressure or fluids. It is really three tools combined in one. The construction of this type of blowout preventer permits by means of displacement, the passage there through of well tubing of various standard external diameters, effectuating a pack off seal during the process and maintaining automatically a fluid pressure seal at the bottom of the blowout preventer general adaptability.

Tubing supports, tubing hangers, vacuum heads as well as other Hinderliter well head devices for high or low pressures; patented split type as well as solid type combination casing rings and elevators; automatic tubing slips; patented pack off rotary tool joints; conventional rotary tool joints; slush pump operated releasing and circulating overshots; rotary fishing baskets; patented combination whip stock, setting spear and mills; cement dump bailers and other drilling and fishing tools for rotary and standard cable tool method.

The Charles N. Hough Mfg. Co.
Franklin, Pa.

123 and 124 Texas Building

In attendance

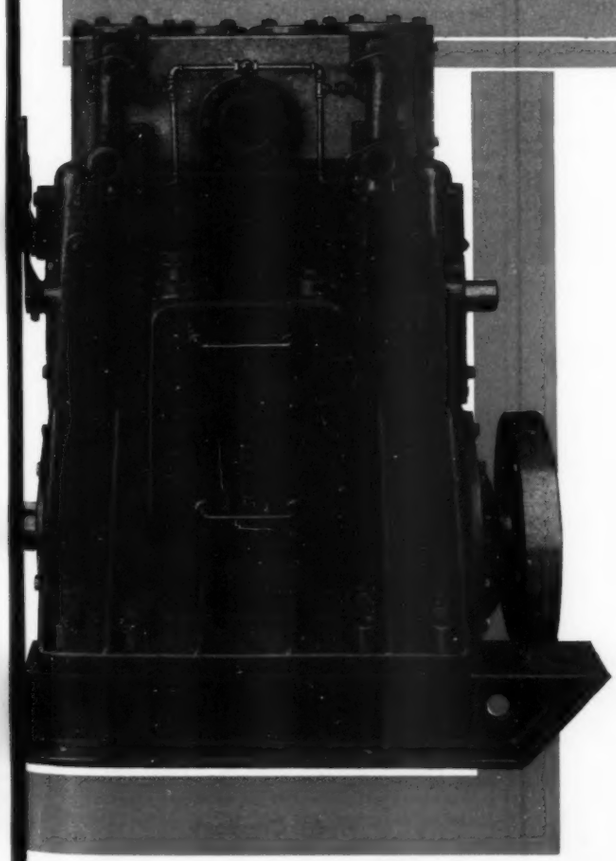
HARRY A. ADAMS — M. B. COKER
A. M. MALLINSON — R. J. FOLMAR
ED. ROSS — C. O. SHUMAKER
FRANK L. SCOTT — C. N. HOUGH
O. J. THOMPSON — R. C. WILLIAMS

Products to be exhibited, various rod-type insert

(Continued on Page 238)

# of Pioneering

"OILWELL" ALONE CAN POINT TO A LINE OF FIELD-PROVEN VERTICAL TWIN-CYLINDER STEAM ENGINES



THE first Vertical Twin-Cylinder Steam Engine for oil field service was developed in 1931 by Oil Well Supply Company—PIONEER in steam saving machinery. This No. 1 or Pioneer Engine has drilled more than 200,000 feet of hole.

Now hundreds of "Oilwell" Vertical Steam Engines have proved their high efficiency by drilling wells deeper, faster and cheaper in the oil fields of the world.

. . .

NO. 7 7¾-INCH BORE x 7-INCH STROKE

Triple-purpose prime mover for moderate duty—hoisting in tandem; driving medium size power slush pumps; individual rotary table drive.

OIL WELL SUPPLY COMPANY

Branch Stores in All Oil Fields

Subsidiary of United States Steel Corporation

"OILWELL"

pumps including the following trade named Hough pumps: Huf M-T-L pump, a new item; Huf-Duo insert pump; Huf-Supersize insert pump; Huf-Stripper insert pump; Huf-Lewis insert plunger pump.

Balls and seats of the following trade names: "Steelex," "Repelex," "Kamonex," "Bronzex," "Resistex," "Combinex." Valves, working barrel; working barrels, seamless steel, seamless bronze; pullers, lower valve, Williams'; Sealex packing rings; polished rod, monel jacketed; liners, polished rod.

The following is description of a new pump exhibited for the first time. The Huf M-T-L rod-type insert pump comprises a grooved alloy iron sectional plunger. The pump is installed and removed with rods without pulling tubing. It is made for 2-inch, 2½-inch and 3-inch tubing. The valved plunger assembly, which is connected to the hold-down assembly by seamless pull tube, remains stationary. The precision tube with traveling valve assembly reciprocates over the stationary plunger. The sections of the plunger are made from a corrosion-resisting alloy iron, heat treated for greater resistance to wear and ground accurately to size. The grooves provide for lubrication. The sections are clamped rigidly in alignment on tubular steel body.

The non-corrodible monel metal jacket is approximately $\frac{1}{16}$-inch thick. The steel rod, over which the jacket is drawn, is SAE 4615. The monel jacket provides long service life and retains its hard smooth surface.

Hughes Tool Co.
Houston, Tex.

211 to 215 and 236 to 240 Oklahoma Building

In attendance

PRENTISS SEALE

The Hughes Tool Co. exhibit will comprise ten 10-foot booths in the new addition to the Oklahoma Building. Prentiss Seale, manager Oklahoma and Kansas district, will be in charge of the exhibit with an adequate staff of attendants to explain and demonstrate all improved features of HUGHES TOOLS. These men will include representatives of both the sales and engineering departments.

Practically all products of the Hughes Tool Co. will be on parade in a very interesting and comprehensive manner, featuring all recent improvements and developments in equipment of its manufacture, sectioned and illustrated that interior construction and workmanship may be viewed to best advantage.

Products exhibited will include rock bits, core bits, tool joints, reamers, drill collars, chokes, tubing and flow heads, valves and fittings, complete assembled trees, and other specialized oil country tools.

Humphreys Steel Products Co.
Dallas, Tex.

Block M

In attendance

DEE E. HUMPHREY — E. L. WHITNEY
R. H. KEAN — M. S. FUQUA
JOSEPH M. MATYAS

Featuring a straight lift pumping unit operated by Palmer generator and the new Humphrey Gyro reduction gear, electric motor driven; also new welded panel derrick.

Hutchison Engineering Works
Oceanic Engineering Works Division
Houston, Tex.

9 and 10 Texas Drive

Exhibiting the new Rumba shale shaker. The new "RUMBA" mud screen has a rubber mounted floating vibrator that vibrates in rubber cushions which in turn transmit the vibrations to the screen top to which the screen cloth is underslung. This construction is designed to cut down harmonic vibrations in the steel construction of the screen top. By underslinging the screen cloth it is possible to drive the screen cloth through top structure struts with rubber friction holds on the screen assuring that the cloth will vibrate at the same frequency that the steel structure or top vibrates.

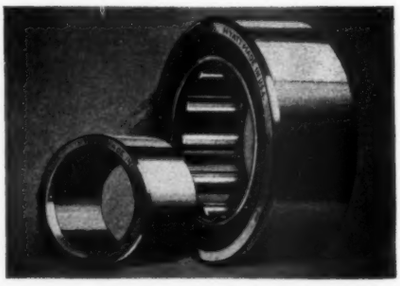
The top is full floating on the base structure, there being no bolts to hold it in any way. All tension bolts are equipped with cap nuts to protect them from rusting or getting filled up with cement, etc. The incoming mud control is all built-in with mud bypasses ready to bypass the mud at any time it is required on account of circulating material to fill structure or anything that it is not desired to take out of the mud returns. It is completely unitized so that it is ready for the field when leaving the factory equipped with 10-foot skids for handling easy on trucks.

Hyatt Bearings Division
General Motors Corp.
Harrison, N. J.

57 and 58 Texas Building

In attendance

C. L. NEWBY — J. L. HAYNES
F. H. WEBSTER — L. L. HILL
H. K. PORTER — H. M. CARROLL



This company will exhibit the extensive use of Hyatt roller bearings in pumps, rotaries, drawworks, blocks, engines, swivels, etc.

Hydril Company
Los Angeles, Calif.

21 and 22 California Building

In attendance

EARL M. DANIELS — W. H. McNAMARA
J. P. MAGOFFIN — ALLEN S. HICKS

Featuring the display will be the automatic blowout preventer and drilling packer set up and operating, and the Hydril octagon roller kelly bushing and octagon kelly which are widely used for drilling through the blowout preventer against pressure. In addition, the display will include full size cutaway joints for drill pipe casing and tubing. Many important items of pres-

The SHOW'S LARGEST EXHIBIT of

FORD V-8

Power Conversions for Oil Industry Use

•

GENERAL POWER

SE Corner, Blk. 103 Skelly Drive

•

DRILLING UNITS
PUMPING UNITS
GENERATING UNITS

In Single, Dual, Triple and Quad Powers
20 K.V.A. GENERATING UNIT
FORD V-8 General Power SPUDDER

•

GENERAL POWER, INC.
QUAPAW, OKLA.

sure control and drilling equipment, including a wide variety of drill pipe, casing and tubing plugs manufactured by the company will also be displayed. The Hydril Multi-Powered reverse drilling unit—a compact and rugged machine—which requires a minimum of floor space, and is of unusually simple design and construction, will also be shown in operation.

ILG Electric Ventilating Co.
Chicago, Ill.

120 Oklahoma Building

In attendance

W. C. MYERS RICHARD BAGWELL
D. M. ALLEN J. M. FRANK

The exhibit will consist of ventilating and heating equipment. Ventilation of buildings in the oil fields is becoming more and more important, both from a

comfort and a safety standpoint. Safety engineers realize the importance of ventilation in preventing explosions, and the ILG company is showing its self-cooled enclosed propeller fans, as well as centrifugal blowers, for this purpose.

Another fan which will be displayed is the Ilgstream, a pedestal mounted fan for discharging a large volume of air at high velocity over a wide area. This fan is used for well operation, blowing air at high velocity on the workers, thus acting as a man cooler as well as keeping off mosquitos, etc.

Both stream and electric unit heaters are displayed. The electric unit heaters are especially applicable for heating small pumping stations, and the steam unit heaters may be used for all types of industrial buildings. Either of these heaters can be furnished entirely explosion proof.

The ILG company is represented in Oklahoma by the W. C. Myers Co., Tulsa.

Industrial Engineering Service
Tulsa, Okla.

48 Scientific and Technical Building

In attendance

L. D. WYANT R. L. STEWART

This space will display the following material:

ACE-O-PAX Packing and other allied items manufactured and distributed by Packing Engineering Co., Cranford, N. J.

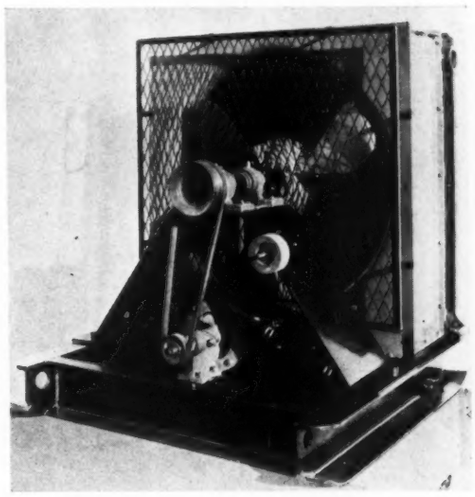
ACE-O-PAX is manufactured in numerous forms. It is the original plastic pump packing, used internationally and manufactured to suit practically any industrial service. Its outstanding characteristics are, long life, lowest friction load, and is guaranteed not to score any rod, plunger, or shaft on which it is properly used.

INSUROK and EBROK Products for the petroleum industry. These laminated Phenolic and Urea plastics are manufactured by the Richardson Co., Melrose Park, Ill. The Richardson Co. manufactures hundreds of articles in the commercial or industrial lines and also all sorts of materials and articles in the field of decorative plastics. The Industrial Engineering Service, however, confines its efforts to the manufacture and sale of items used by the petroleum industry, such as pump rings, compressor rings, pipe, tubing, bearings, etc. The types, grades, and special uses of these materials are too numerous to attempt to list. One statement is indicative of the field for this material: It is not affected by any corrosive agents normally found in the producing or refining industries, hence its application and use is growing with astonishing rapidity.

SARCO Steam Specialties, manufactured by the SARCO Co. at Bethlehem, Pa. This line of equipment is widely used in all industrial fields. It includes temperature regulators, strainers, thermostatic and in-

(Continued on Page 242)

MODERNIZE
WITH



The NEW, IMPROVED Franks Coolers of latest type construction, with cast iron tanks, which can be dismantled in the field and cleaned, thus eliminating expensive shut-down time. The new design gives maximum cooling for every pound of copper. See these ENGINE COOLERS at Space No. 1 Hobbs Street at the International Petroleum Exposition.

Chas. J. Franks Co.
316-318 E. 11th St. TULSA, OKLA. Ph. 3-3820

KENNEDY....
for dependable valve service
with oil, gas, steam or water

Heavy Standard Bronze Globe Valve

Iron Body Gate Valve 400-lb. Test Press.

Iron Body Gate Valve—1000-lb. Test Press.

Iron Body Gate Valve 700-lb. Test Press.

Iron Body Gate Valve 1600-lb. Test Press.

KENNEDY Valves open and close easily and remain tight indefinitely. Their bodies and bonnets are sturdily proportioned, stems are of specially tough, strong metal, operating mechanisms are simple and positive, and stuffing boxes are generous and have high grade molded packing. You can always depend on Kennedy Valves to serve long and efficiently.

Obtainable from your supply house.

The Kennedy Valve Mfg. Co.
Elmira, N. Y.

INTRODUCED AT

NOW-2 ye

AN INTERNATI

SUCCESS!

SEE IT IN ACTION — AT THE EXPOSITION

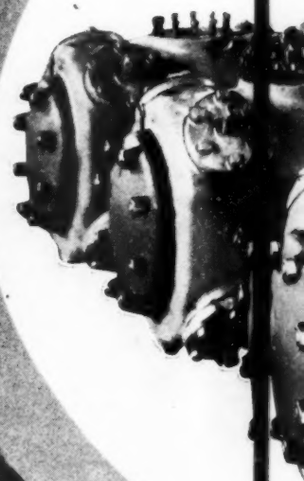
Announced and displayed for the first time at the International Petroleum Exposition of 1936,—just "between shows" the CLARK "Super-2-Angle" has advanced from a situation where it was entirely unknown, to a position of definite world leadership in its field. This unit ranks today, without a question, as the compressor sensation of the century! Not only have scores of major installations been made in this country from coast to coast, but the export demand has been exceptional, culminating recently in orders totaling three quarters of a million dollars.

The CLARK "Angle" combines the simplicity of the CLARK Super-2-Cycle Horizontal Compressor with the advantages of the CLARK Vertical Gas Engine. Its success is directly attributable to the fact that, without sacrificing either power or efficiency, it has introduced these important basic savings: (1) Shipment assembled; (2) Smaller foundations; (3) Smaller floor space and building; (4) Lower fuel consumption; (5) Lower maintenance.

Made in 2, 3, 4 and 6-cylinder sizes, ranging from 200 to 600 H.P. See this important new development without fail, at the Exposition, CLARK Building, Section U, near center of grounds.

CLARK BROS. COMPANY
Olean, New York, U.S.A.

Export Office: 30 Rockefeller Plaza, New York. Mid-continent Sales Offices and Warehouses: Tulsa, Okla., Dallas and Houston, Texas. West Coast Offices: Smith-Booth-Usher, 2001 Santa Fe Av., Los Angeles. Foreign Offices: 72 Turnmill St., E. C. 1, London, England; 4 Str. General Poetas, Bucharest, Roumania.



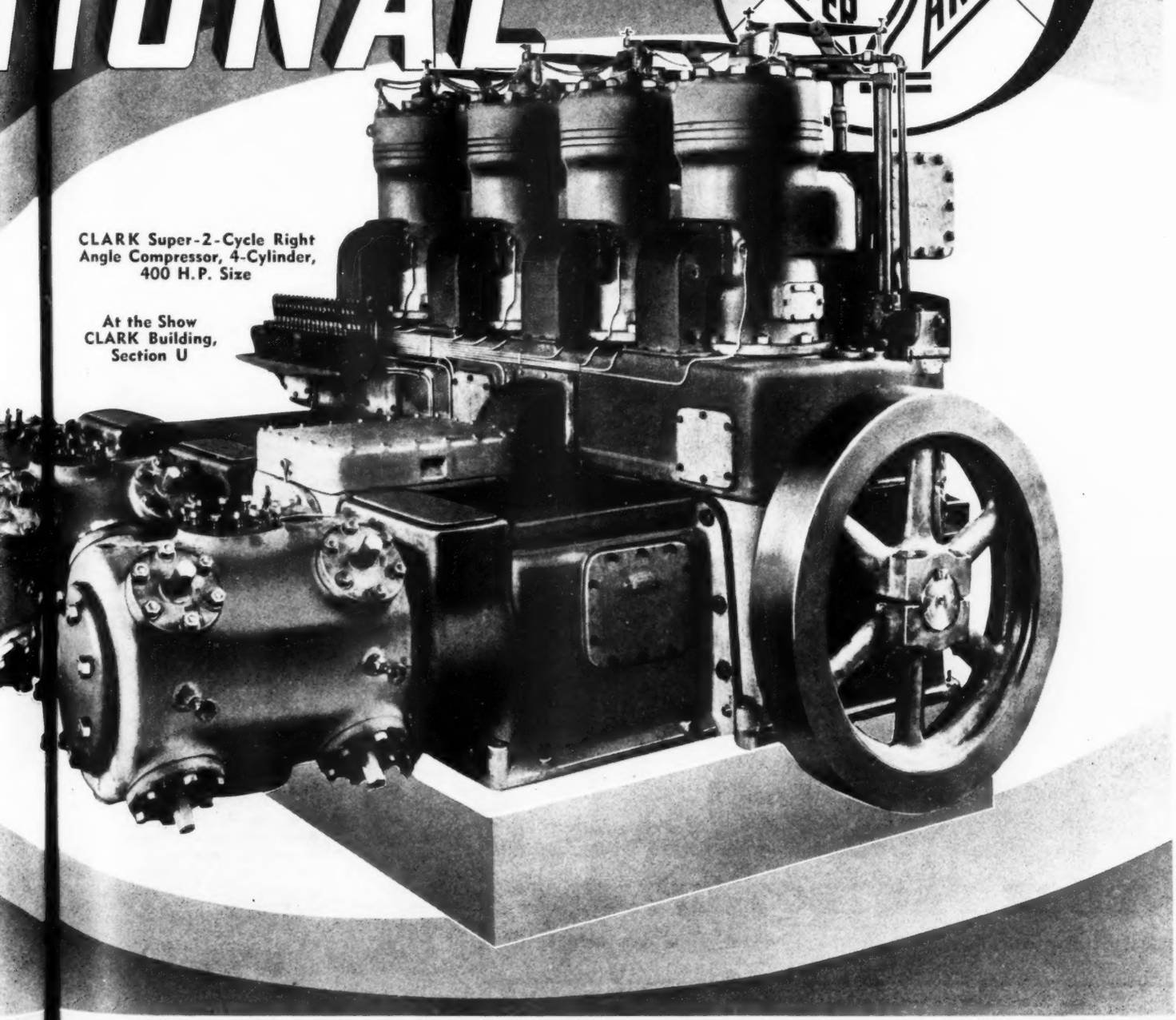
CLARK

THE 1936 SHOW!

ears later

TIONAL

SUPER 2 ANGLE



CLARK Super-2-Cycle Right Angle Compressor, 4-Cylinder, 400 H.P. Size

At the Show
CLARK Building,
Section U

verted bucket type steam traps, pipe savers, and numerous items incidental and accessory to these main articles.

Industrial Sales & Engineering Co.
Houston, Tex.

4, 5, 37, 38 and 67 California Building

In attendance

Representing Industrial Sales & Engineering Company
J. H. DRAPIER W. R. DAVIS
L. B. HOLT JOHN A. COLEMAN
Representing Dodge Manufacturing Corporation
B. L. MYERS JOHN MILLER
Representing Union Chain & Manufacturing Company
E. F. EMMONS PERRY CATRON
E. J. BUDER J. F. SMITH
M. CLINE T. J. NOLAN
G. M. FEHR
Representing Chicago Rawhide Manufacturing Company
ED JOHNSON, JR.
Representing Kropp Forge Company
ROY KROPP HOWARD HAWKINS
Representing D. O. James Manufacturing Company
JOHN HOLLY L. H. SCHRADE
J. J. DOWLING
Representing Laminated Shim Company, Inc.
OWEN JONES R. SEIPT

This company which covers Texas, Oklahoma and a part of Kansas, is the sales representative for Dodge Manufacturing Corporation, Union Chain & Manufacturing Company, D. O. James Manufacturing Company, Kropp Forge Company, Chicago Rawhide Manufacturing Company, and Laminated Shim Company, Inc.

In Booths 4 and 5 will be exhibited the line of Dodge Manufacturing Corporation used in the oil fields, which includes Dodge-Timken bearings, Dodge V-belt drives, and with special emphasis on the Diamond "D" clutch for heavy oil field type service.

In Booths 37, 38 and 67 will be a combined exhibit of the Union Chain & Manufacturing Company line of rotary and drilling chain, as well as machine finished roller chain; D. O. James Manufacturing Company oil field pumping unit and other types of gears; Chicago Rawhide Manufacturing Company will show its Perfect oil seal as well as several synthetic rubber products; Kropp Forge Company will show some samples of heavy hammer forgings, die forgings and standard flanges; Laminated Shim Company, Inc., will show its Handy Shim kit of various sizes and thickness of solid shim stock, also its special Laminated shim stock.

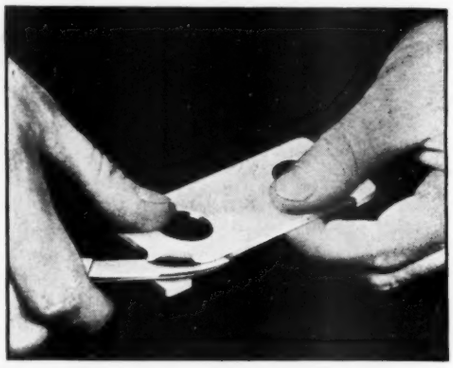
Laminated Shim Company
Long Island City, N. Y.

37 and 38 California Building

In attendance

J. H. DRAPIER W. R. DAVIS
L. B. HOLT OWEN C. JONES

Will exhibit jointly with its manufacturers' representatives, Industrial Sales & Engineering Co. Exhibit will illustrate the uses of Laminum shim stock, the solid



A laminated shim is simply peeled for accurate adjustment in factory assembly or service. No filing, machining, or grinding

brass shim stock that peels for accurate adjustment. Another item on display will be the company's handy dispensing kit, carrying an assortment of plain shim stock for convenient use in tool rooms, repair departments—anywhere on the job where shim brass and steel of accurate, known gauge are necessary.

D. O. James Mfg. Co.
Chicago, Ill.

37, 38 and 67 California Building

In attendance

J. A. HOLY

Will exhibit the D. O. James improved pumping unit, which will be equipped with alloy steel heat-treated cut continuous tooth herringbone gears, cut and lapped to very close limits, providing minimum back-lash. Bearings and shafts oversize and housing on a heavy and well ribbed construction. Lubrication by splash with continuous feed to all bearings.

Industrial Engineering Co.
Los Angeles, Calif.

11 Oklahoma Building

In attendance

W. W. COLLEY H. C. PRICE

Will display Somastic pipe coating, which is an asphalt mastic coating approximately one-half inch thick and affords permanent pipe protection for pipe lines. This coating is composed of sand, air blown asphalt, lime dust and asbestos.

Ingersoll-Rand Co.
Phillipsburg, N. J.

Block J on Hobbs Street from Tyler Street to Signal Hill

Prominent among the equipment which Ingersoll-Rand will exhibit will be its PVG gas engine, recently introduced, which is suitable for driving generators, pumps and other equipment. This machine is built in three sizes of four, six, and eight cylinders, with ratings, respectively, of 185-horsepower, 275-horsepower, and 370-horsepower. The cylinders, which are of "V" type construction, have a bore of 11 inches, with a stroke of 13½ inches, and all units operate at 400 r.p.m. All working parts are completely enclosed. Numerous units already in service are making fine records in several oil fields.

The XVG gas-engine-driven compressor will be featured in the exhibit. Also to be shown are the Type S

WELD CASING ECONOMICALLY with WEDGE CHILL RINGS

WEDGE Chill Rings save time and money in welding casing strings because they:

1. **Speed casing alignment**
2. **Cut down labor cost**
3. **Stop loss of weld metal**
4. **Reduce the hazard of human inefficiency**

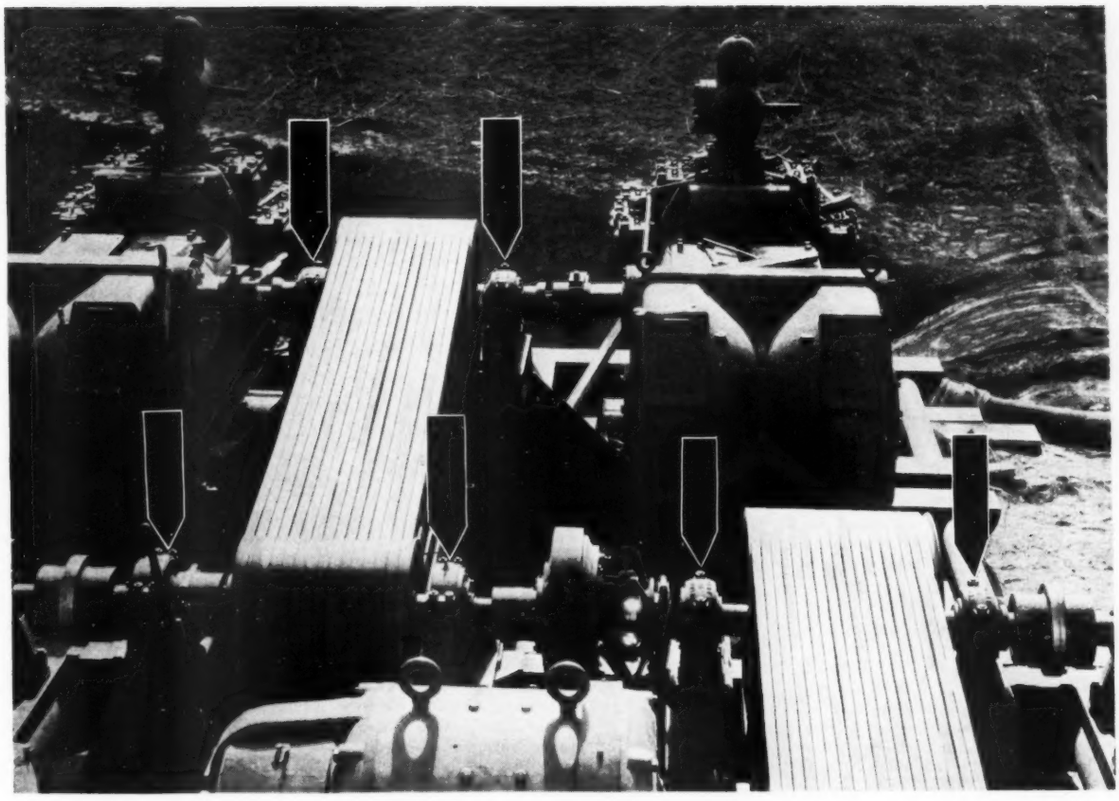
The Wedge Ring is split to allow it to spring and adjust itself. The inside of the ring is absolutely smooth and level, and has chamfered edges. When casing is belled, as illustrated above, the Wedge Chill Ring offers no interference whatsoever.

Wedge Chill Rings Insure Perfect Casing Joints

Write for prices and specifications

WEDGE PROTECTORS, INC.

9522 Richmond Ave. **Cleveland, Ohio**



For HEAVY DUTY STRAINS ...*and* SHOCK LOADS...

You get smoother, faster production when you equip with Medart-Timken Anti-friction Pillow Blocks, Hanger Bearings, Flange Units and Unit Mounts... They are easy to install — easy to remove — require no attention after installation, except occasional lubrication . . . Sealed against leakage of lubricant — dirt cannot enter the housing . . . Completely assembled and lubricated before shipment.

Furnished in 4 types: For General Purpose Applications... For High Speeds and Shock Loads... For Conveyor and Machinery Applications... For Light Duty General Purpose Applications.

THE MEDART COMPANY

General Offices and Works: 3512 DeKalb Street, St. Louis, Missouri

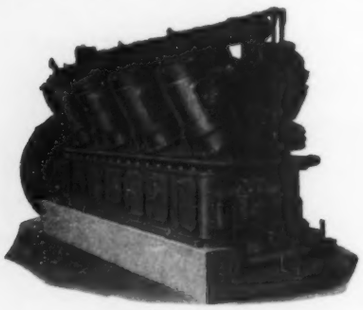
ENGINEERING SALES OFFICES: Cincinnati, Cleveland, New York, Buffalo, Philadelphia, Chicago, Pittsburgh, New Orleans, San Francisco, Los Angeles, Dallas, Denver, Charlotte, Birmingham, Milwaukee, Minneapolis, Atlanta, Detroit, Grand Rapids, Kansas City

See Our Exhibit at the INTERNATIONAL PETROLEUM EXPOSITION TULSA MAY 14-21

In Conjunction With HAPPY BELTING CO.

MEDART

diesel engine particularly suitable for driving pipe line pumps; starting air compressors; Class RT pipe line



pumps; and general service pumps (the Class GT line as well as the famous "Motorpump").

The International Derrick & Equipment Co.

Columbus, Ohio

Outside Block 3

In attendance

L. J. BROWN — C. R. ATHY
E. H. EDDLEMAN — C. M. POWELL
L. L. POWELL

Cut-out switch. This company will display the new Ideco cut-out switch (patent pending), designed to shut down the prime mover on a pumping well when a part of the pumping rig breaks or gets out of adjustment. This cut-out switch may be installed on a standard rig a geared pumping machine, a chain rig, or a jack, and may be used to shut down an electric motor or a gas engine of any type.

This device is built in two units, one unit for attachment to the polished rod and the other unit for attachment to the cross beam equalizer of a twin-crank pumping machine. This cut-out switch will be shown and demonstrated in operation.

Ideco pumping units. The Ideco pumping units to be displayed embody several new improvements. Notable among them is a new type of pitman cross beam arrangement. The cross beam is of the underslung type and is designed to permit free oscillating movement as well as equalization of pitman strains through an additional pivoting feature.

These units also include a new type center iron which has been developed by Ideco. Both the pitman

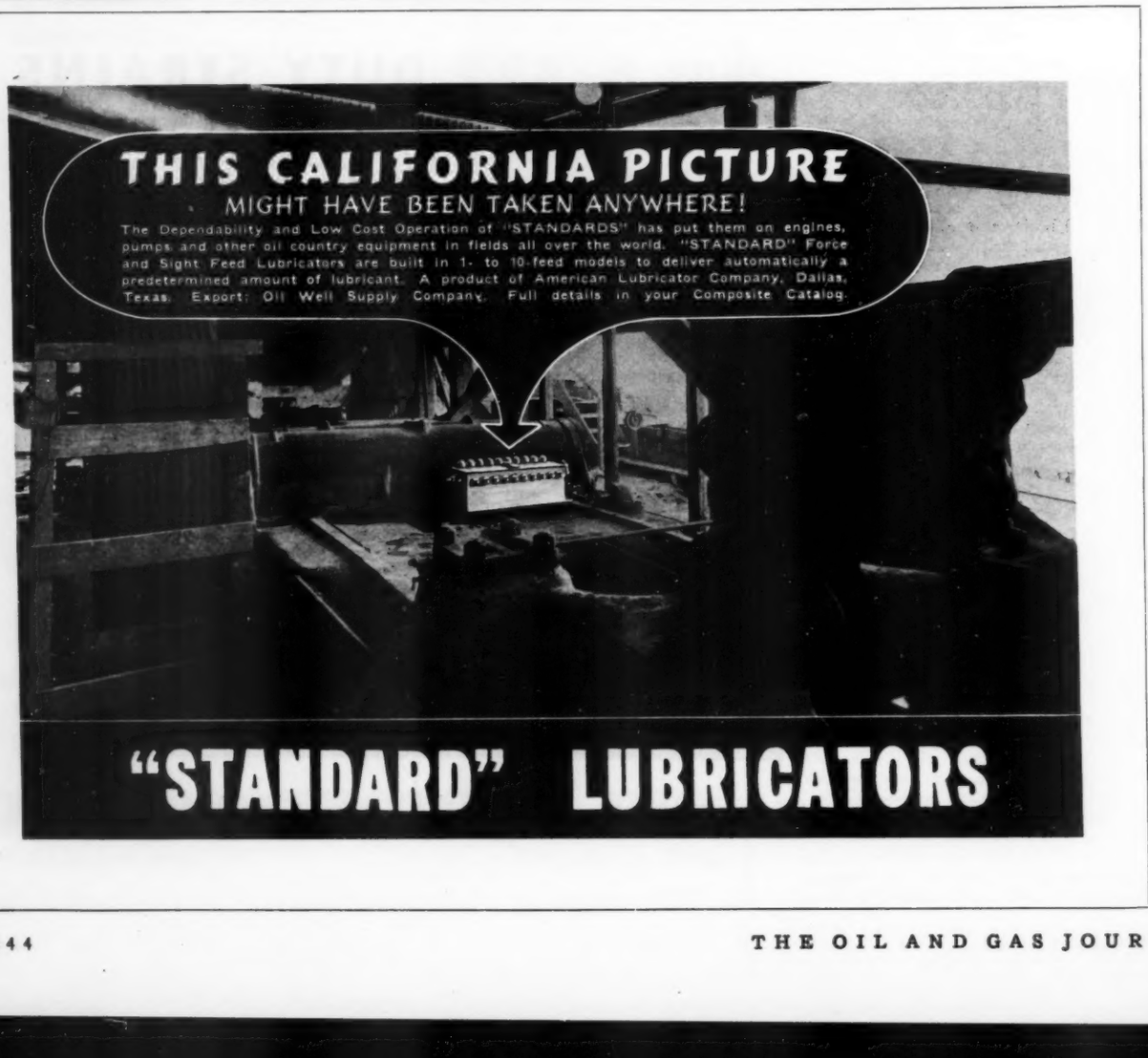
cross beam center bearing and walking beam center iron bearing are Alemite lubricated and may be greased with a grease gun from the ground. A further improvement is the use of a new design of Mule Head and chain type beam hanger. These improvements and others add greatly to these already dependable long life machines.

Ideco pumping jack. An improved pumping jack, known as a U-10, will be shown. This pumping jack has a capacity of 10,000 pounds. A major improvement in Ideco pumping jack design will be found in the use of a new design of Mule Head and chain type beam hanger. A further improvement is the use of a bronze bushed center bearing. Both tend to add materially to the life and service of these jacks.

Ideco gear box. A new gear box, known as a DG-685 double reduction gear box, will be exhibited. This new design retains all of the fine qualities found in Ideco gear boxes but is much larger and more powerful than any yet produced by this company, having 85-horsepower capacity.

Ideco mechanical rotary drilling rig. The Ideco mechanical drilling rig which will be displayed is a much improved type of drilling rig. It is a compact, easily portable unit which will stand up under severe service with a minimum of maintenance expense. The rig, which consists principally of a Little Giant drawworks, Ideco two-speed reverse clutch, and the drawworks and slush pump power units, is conservatively designed for drilling operations to 6,000 or 7,000 feet. The unit features centralized control from the driller's position, and instantaneous reversing action. Six speeds forward and one reverse selection are available. The two-speed reverse clutch was designed to incorporate the adaptable features of the Big Giant drawworks. The clutch not only serves as a reversing mechanism, but furnishes a selection of two forward speeds to the drawworks.

Each power unit consists of a welded steel skid assembly upon which is mounted a 200-hp. drilling engine and a shaft mounted on two self-aligning roller bearing pillow blocks, which is connected to the engine crankshaft by a flexible coupling. The shaft supports a V-belt sheave mounted on roller bearings and connected to a friction clutch, and a V-belt sheave keyed to the shaft. The two friction clutches on the power units are also controlled by air from the driller's position. The drive from the power units to the pump and reverse clutch are multiple V-belt drives. The drive from the reverse clutch to the drawworks is double strand roller chain with cut-tooth sprockets. The drive is en-


THIS CALIFORNIA PICTURE
MIGHT HAVE BEEN TAKEN ANYWHERE!
The Dependability and Low Cost Operation of "STANDARDS" has put them on engines, pumps and other oil country equipment in fields all over the world. "STANDARD" Force and Sight Feed Lubricators are built in 1- to 10-feed models to deliver automatically a predetermined amount of lubricant. A product of American Lubricator Company, Dallas, Texas. Export: Oil Well Supply Company. Full details in your Composite Catalog.
"STANDARD" LUBRICATORS

closed in an oiltight housing and the chain lubricated by the drawworks chain oiling system.

Ideco two-speed reverse clutch. The company announces a new reverse clutch unit for use with internal combustion-powered mechanical drilling rigs. The unit not only provides a reversing mechanism, but it also furnishes a selection of two forward speeds to the drawworks. The clutch consists principally of three chain drives and two enclosed friction clutches. The chain drives are fully enclosed, operating on machine-cut sprockets and lubricated by a pump-driven "pressure-spray" chain oiling system. Each shaft is mounted on two self-aligning roller bearings. The clutch is sturdily and compactly built.

Both the selective speed clutch and the forward and reverse friction clutches may be controlled from the driller's position if desired. The forward and reverse clutches are operated by one lever having three positions; forward, neutral and reverse. The reversing action is instantaneous. This is a modern type of transmission which will stand up under the rigors of the worst rotary drilling conditions. As a result of the efficient lubrication and sturdy design it will operate smoothly and quietly under the heaviest loads.

International Harvester Co.
Chicago, Ill.

Block 101, International Harvester Building, Skelly Drive

In attendance

R. W. ELLIOTT	J. A. KENDALL
G. E. BARR	A. P. REITZ
I. R. MILBURN	W. R. AVEN
E. C. HURTIG	C. U. STARK
J. T. COGGINS	R. D. ROBERTS
L. P. YOUNG	W. H. LINDSEY
G. E. NORSWORTHY	W. M. BARCOW
M. F. HOLOHAN, JR.	A. M. WOODY
H. P. CARLSON	A. W. WARNER
J. F. SIMS	H. C. BOZEMAN
R. W. SALTER	L. F. PRATT
E. V. WILLIAMS	G. W. BAKER
NEAL HIGGINS	R. C. FLODIN
W. M. PARRISH	P. V. MOULDER
M. F. PECKELS	DON JONES
J. F. FOLEY	

A new, permanent, all-steel building, 50 by 70 feet, will be devoted to a greatly enlarged International Harvester exhibit. North of the building is a lot, 40 by 70 feet, in which heavier types of equipment, tractors and motor trucks rigged up for oil-field work will be shown.

A feature of the motor truck display will be a big, specially finished DR-346-F six-wheel International chassis and cab with rear end mounted on rollers to show flexibility of four-wheel drive at rear. A D-2 International station wagon, a three-quarters to 1-ton Model D-15 of 125-inch wheelbase, a 1¼ to 2-ton Model DS-35 with two-speed rear axle and of 161-inch wheelbase, and a 3 to 4-ton Model D-50 of 161-inch wheelbase, the three latter named to be equipped with oil-field equipment, several motor truck engines, and a special motor truck parts display will also be included in the indoor exhibit.

The interior exhibit also includes several sizes of International power units (one a Model P-50 with butane equipment) used in drilling, pulling rods, and other oil-field operations, a T-20 crawler TracTracTor equipped with winch, a T-40 crawler TracTracTor equipped with bullgrader and winch, a cutaway diesel engine, a magneto display, a sprocket and roller display, a display showing how surface hardening is accomplished by the famous Tocco process, and two miniature derrick displays.

In the outside space will be motor trucks equipped for heavy-duty oil-field work. Two will be big six-wheel Internationals, one a Model D-246-F or 215-inch wheelbase and the other a Model DR-426-F of 233-inch wheelbase. A third International will be a 3½ to 4½-ton Model DR-60 with double-reduction herringbone gear drive and the fourth a Model D-300 cab-over-engine International.

There will also be two wheel-type International tractors, a Model W-40 and a Model I-30 equipped with front-end winches; two crawler tractors, a T-40 TracTracTor and a T-35 TracTracTor equipped with pipe booms; and two power units, one a Model U-7 mounted on trailer to make it a portable unit and a P-300 connected to pump. A big derrick outside will serve as a tower for floodlighting.

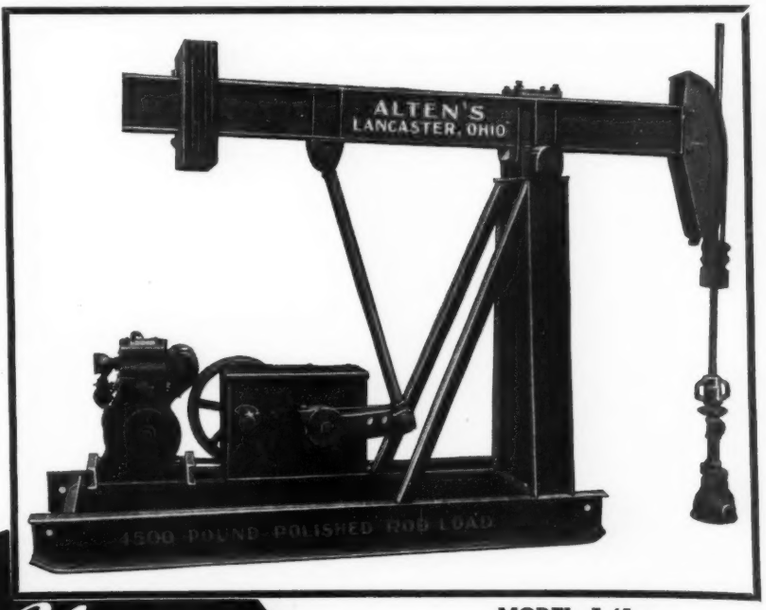
Among the tractors shown is the recently developed T-35 TracTracTor powered by a six-cylinder engine. This new crawler tractor has variable-speed governor, five-speed transmission with forward speeds of 1¾ to 4 miles an hour and 2¼ reverse, ball bearings at 43 points, replaceable cylinders, Tocco electrically hardened crankshafts, special dust seals, fuel strainers, air cleaner, oil filter, and unit construction throughout which permits removal of important working parts as units and thus makes adjustments and replacements possible in minimum time. Other data follows: Track face (regular shoe), 13 inches; track tread, standard-tread model, 45 inches; wide-tread model, 56 inches; track ground contact, 64⅜ inches; total length, 132⅛ inches; and total width (standard-tread model), 59¼ inches. Bore and stroke are 3⅝ by 4½ inches.

The "D" line of motor trucks ranges in capacity from half-ton light-delivery or pick-up units to the largest six-wheelers. They include conventional four-wheel units, six-wheelers with both dual-drive and trailing axles, and cab-over-engine types. The complete International line consists of 24 models in 73 wheelbases with gross vehicle weights ranging from 4,400 to 62,000 pounds.

Powerful truck engines, numerous wheelbases, a variety of rear axle ratios, two-speed rear axles, and multiple-speed transmissions, especially in the heavy-duty models, permit accurate selection from every standpoint of the right truck for each specific task.

International trucks provide universally standardized (S.A.E.) cab-to-rear-axle dimensions so vitally necessary to body interchangeability, and they also permit mounting of standard-length bodies of stock sizes. Front axles are set back and this, together with the relocation of rear axles and cabs, contributes to greatly improved load distribution, not only of body and pay load, but of gross weight as well.

Wheelbases, in conjunction with correct cab-to-rear-axle dimensions, are available to accommodate all length of bodies, with the ideal conditions resulting from the use of bodies in even foot lengths. At the same time, bodies in odd-foot lengths will permit satisfactory mounting and load distribution on either the next shorter or longer wheelbases.



MODEL A-45

A New ALTEN PUMPING UNIT

This Alten's 4500-pound Polish Rod Load Pumping Unit is designed for efficient service at low cost.

with these four features

- SAMPSON POST BEARINGS—Bronzed bushed with oil seals.
- PITMAN BEARINGS—Self-aligning roller bearings.
- REDUCTION UNIT BEARINGS—Heavy roller bearings.
- PRIME MOVER—5 to 8 H.P. air cooled gasoline motor with twin disc clutch.

Write for further details and prices.

SEE US AT BOOTH 40, KANSAS BUILDING

Alten's Casing Heads, Stop Cocks, Stuffing Boxes, Gas Drip and other items will be on display at Booth 40, Kansas Building, International Petroleum Exposition, Tulsa, May 14 to 21.

ALTEN'S
FOUNDRY & MACHINE WORKS
ESTABLISHED 1889
LANCASTER, OHIO

Gotkool,

WATER CANS & COOLERS

GOTT Water Cans are the practical way to keep drinking water cool for long periods, protected from impurities and always handy to the job. Snug fitting large removable top, strongly built to withstand rough usage. GOTT Water Coolers have extra large covers and a handy non-leaking push button faucet. Your Supply Store has them, get one today!

GOTT WATER COOLER
Made in 3, 5, 8, 10, and 20 gallon sizes.

GOTT WATER CAN
Made in 1½, 3, 5, and 10 gallon sizes.

H. P. GOTT MFG. CO.
WINFIELD, KANSAS

KEEP PURE DRINKING WATER ALWAYS HANDY

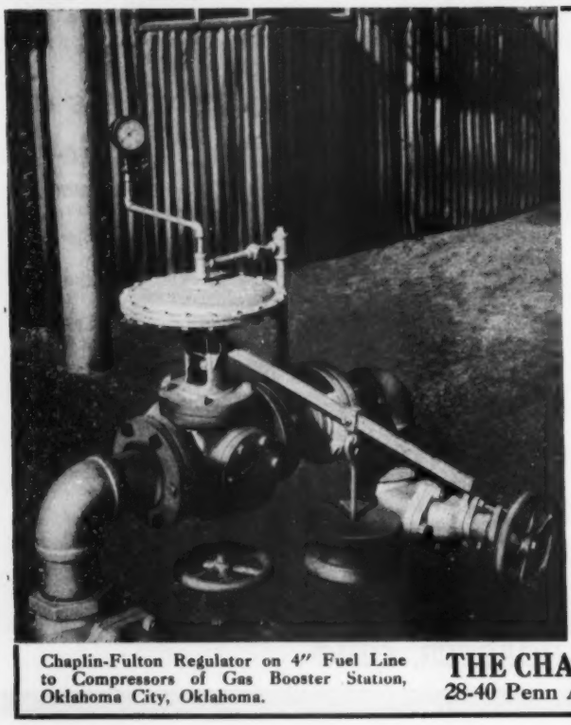
More Than 5,000,000 Feet of

MONO-CAST DOUBLEX SIMPLEX PIPE *Now In Service!*

DURING the past 9 years, more than 5,000,000 feet of Mono-Cast Doublex Simplex Pipe have gone into service in 39 states and 10 foreign countries. In pipe lines from 3" to 36" it is conveying water, manufactured and natural gas, crude oil, gasoline, sour naphtha, salt brine, foamite fire foam—in fact, just about everything a pipe line can conceivably convey—under operating pressures in excess of 500 lbs. gas and 100 lbs. liquid. Equipped with the flexible, bottletight Doublex Simplex Joint which offers money-saving construction advantages. For literature on this pipe which has set a new standard for Cast Iron Pipe in fields of super-service, address Acipco office nearest you.

AMERICAN CAST IRON PIPE COMPANY
BIRMINGHAM, ALA.

Dallas Houston El Paso Pittsburgh Kansas City Chicago Minneapolis New York City Cleveland Los Angeles San Francisco



Booth 40, S. & T. Building

See Our Exhibit INTERNATIONAL PETROLEUM EXPOSITION TULSA MAY. 14-21

Always Well Fed— Never Too Well

Gas pressure in the fuel line is constant, therefore the engine does its work steadily and well, the compressors are never over-driven or run too slack, the booster-station performs unfailingly, and the total result is as it should be.

Just a normal, typical Chaplin-Fulton installation is pictured, the regulator in question being the Low Pressure type without Automatic Cut-off. Chaplin-Fulton equipment for all requirements of gas control has been in use more than 50 years. Catalog on request.

Chaplin-Fulton Regulator on 4" Fuel Line to Compressors of Gas Booster Station, Oklahoma City, Oklahoma.

THE CHAPLIN-FULTON MFG. CO.
28-40 Penn Avenue Pittsburgh, Pa.

The International Nickel Co., Inc.
New York

64, 65 and 66 Texas Building

In attendance

O. B. J. FRASER	B. B. MORTON
A. G. ZIMA	J. S. WELWOOD
F. R. BAILEY	G. W. STRAHAN

Will feature nickel alloy steel sucker rods, Monel pump rods, nickel steel tool joints and other similar specimens. The main feature of the exhibit will be the background of the booth on which will appear an animated flow chart showing the many applications of nickel-containing alloys in both the production and refining of petroleum products.

International Supply Co.
Tulsa, Okla.

Block 103 South, between Skelly Drive and Dawson Avenue

In attendance

A. E. BALLIN	A. F. BOURNE
BOB BRADSHAW	E. H. BUTLER
W. A. CHANEY	R. L. COBB
WILLIAM CONRADE	W. B. COTTON
W. T. DAVIS	R. E. DOW
A. B. HARRISON	J. C. MANN
R. L. NEAL	R. W. NEAL
L. J. NELSON	H. M. QUICK
T. B. SIMPSON	JOHN W. SLOAN
R. W. TRIMBLE	M. Q. WILSON
J. B. WRIGLEY	

This year's exhibit will feature the new improved ISCO pumping units, especially the 17000 double crank unit and the 8000 D.C. beam type unit. Special features

ISCO pumping unit

which apply to all ISCO pumping units include weatherproof oilbath lubrication, Foote Bros. gear boxes with helical gears, enclosed grease-packed bearings and adjustable counterbalances. Units are made for both rig

ISCO reverse clutch

front and back-crank installations, with derrick type sampson post. The long stroke of ISCO pumping units gives high recovery at low cost; gas, gasoline, diesel or electric power may be used. Ample clearance for well servicing is provided and walking beam and gear box capacities are based on A.P.I. specifications.

Of equal importance will be the showing of this company's rotary drilling equipment. Included will be the rotary rig reverse clutch, a definite ISCO improvement for smoothness of clutch operation, obtained through sturdy construction, superior lubrication and correct design. This clutch has forward drive by 2½-

inch triple roller chain. Gears are cast S.A.E. alloy steel herringbone. Reverse and neutral positions are pivoted on ball bearings. Operating lever and clutch yoke are both Alemite lubricated. Base is of heavy structural steel with semi-steel ribbed cases. Shafts operate on roller bearings. Clutch has 36-inch double plate friction disc.

Other equipment to be shown will be rotary traveling blocks and rotary crown blocks, engines, drill collars, kellys, safety casing spiders, Sargent Engineering Corp. pumps, and Titusville Iron Works Co. products.

Iverson Tool Company
Tulsa, Okla.

13, 14 and 15 California Building

In attendance

S. J. IVERSON — S. B. IVERSON
L. A. EBERHART — J. D. DILLARD
HARRY WILLIS — L. H. PUCKETT
ELMER DALLAS — M. J. HUNTER
A. M. IVERSON — P. M. IVERSON
V. L. WEEDY — C. C. HURLBURT
H. M. LUNDQUIST

The new item exhibited which will be of interest to the rotary drilling contractors is the Goodall 10,000-pound Long Life rotary hose with Barney couplings. The Barney coupling has now been thoroughly tested in the oil country and has been found to fill a long felt need in that there is no restricted passage at the end of the hose where it was formerly necessary to insert the stem of the coupling. It relieves the necessity of using any clamp whatsoever on the outside of the hose. From the safety engineers' standpoint, it is a valuable contribution to safety, as there is no possibility of the coupling blowing out of the hose or leaking. The actual tests in the field have shown that this coupling does not loosen up during the life of the hose. The hose itself is of the reinforced, three-wire construction made to withstand 10,000 pounds.

The company also has an exhibit of the Newtype rubber gasoline and distillate hose reinforced with wire woven into the carcass of the hose. This is the hose that has proved so satisfactory for bulk and tank-wagon service as well as curb pump use, a great advantage of this hose being that it can be crushed and then hammered out round again and be satisfactory for service just as it was previous to its crushing. The company will also exhibit other hose such as air, water, suction and discharge and fire hose.

The booth will be lighted with a 5 KW 11-horsepower, four-cylinder Young Engine Corp. electric generator. This is a compact, light weight Young Engine Corp. lighting plant for use throughout the oil country mounted in such a way as to be portable and easily moved from one location to the next. This unit is used to call attention to a large outdoor exhibit, the Young Engine Corp. drilling unit and power drive for rotary drilling rig, which will occupy space between the Texas Building and the Oklahoma Building. The Young unit allows for a slower speed power unit so that the life is much longer than in a high-speed engine.

Lima Cord Sole & Heel Co.'s products, Grocord, the oil-resisting gasket material for mending leaks in line pipe will be exhibited also. The Iverson company is exclusive distributor for this material in this territory and Grocord is manufactured by the Lima Cord Sole & Heel Co. at Lima, Ohio. They also manufacture oil-proof soles for work shoes. Some of these shoes will be exhibited.

Also exhibited will be the Iverson light weight, hard gripping tubing tong which has now proved its worth in the oil fields.

Allpax packing, manufactured by the Allpax Co. will be on exhibit. The Iverson company is exclusive distributors for this material in the Mid-Continent area. This is an all-purpose packing, for use on pumps and engines and is very successful on centrifugal pumps.

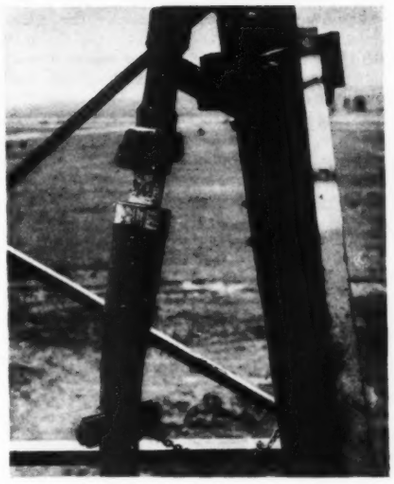
Goodall Rubber Company
Houston, Tex.

14, 15 and 16 California Building

In attendance

H. BARNARD

Displaying the Goodall Longlife rotary hose-Barney coupling drilling hose unit with Iverson Tool Co., Mid-Continent distributor for Goodall. It will present the improvement feature due to the Barney coupling, an exclusive feature now built integrally with the hose. This coupling employs no clamps or stems, and therefore eliminates metal from the bore of the hose. It is displayed for the first time at an exposition in Tulsa,



but has undergone more than a year of field service on deep wells, the drilling of which required hose pressures ranging from 1,000 to 3,000 pounds.

Jarecki Manufacturing Co.
Erie, Pa.

78 and 79 Texas Building

In attendance

A. A. MOODY — R. B. MOODY
H. R. CARPENTER — C. B. MARTIN
R. W. HILL — F. G. WHITE

Will exhibit the "time-tested" line of iron body and bronze valves; malleable iron, cast iron and brass unions; malleable iron, cast iron and bronze pipe fittings; and a number of Jarecki oil field specialties.

These specialties include the Jarecki stuffing box, pumping tee, improved Berry casing head, threadless hinged bell nipple, and roller pull rod carrier.

The Jeffrey Manufacturing Co.
Columbus, Ohio

88 and 89 Refiners and Marketers Building

In attendance

L. E. BRILL — THOMAS P. BURKE

Display samples of the company's oil well chains, a "shale shaker" mud screen, a 2- by 4-foot Traylor screen, four No. 1 Traylor feeders and a Jeffrey belt idler.

Jenkins Bros.
New York City

13 and 14 Kansas Building

In attendance

H. J. BARNSLEY — W. BOYCE WHITE
F. J. KLEMANN

The exhibit will include samples of bronze, iron, cast steel and stainless steel valves that are of particular interest to the petroleum industry. Of special interest will be the introduction of the new Jenkins U-Bolt gate valves that are made in bronze mounted and all-iron, in sizes from ¼ inch to 4 inches, inclusive.

New U-Bolt gate valve

The many exclusive advantages in design and construction which are included in these new valves will be portrayed by means of large sectional drawings in which the features are illustrated by means of electric lights and explained by illuminated cards.

The second Jenkins valve to be featured will be Figure 976 bronze Regrind-Renew valve with JX500 special alloy steel plug and seat ring exceeding 500 brinell hardness. Here, too, the many extra advantages of Figure 976 will be indicated and fully explained by means of illuminated diagrams and text matter.

Another complete new line of valves, Jenkins stainless steel valves, will be shown for the first time, and H. J. Barnsley, a member of the company's engineering advisory service, will be on hand to discuss corrosion resisting problems and the use of stainless steel in all of its many phases, with any field or refinery man that may be interested.

Johns-Manville
New York

44 to 47 Oklahoma Building

In attendance

J. S. CARROLL — J. A. O'BRIEN
F. W. HODSON — T. C. GREENWOOD
M. E. DUNCAN — E. J. LIGGETT

The new Johns-Manville one-piece asbestos suit is featured at the exhibit together with a number of other products which serve the oil industry in many

Johns-Manville transite asbestos-cement pipe is widely used in oil fields for salt water disposal lines. The simplex couplings used in the pipe form a flexible yet bottle-tight connection

ways. These include Transite Asbestos-Cement pipe for salt water disposal lines, insulations and refractories, brake linings, packings and materials for the protection of underground pipe lines.

Other products in the display are asbestos flexboard, insulating board, asbestos roofings and sidings, and corrugated and flat Transite asbestos sheets for industrial roofing and siding, and for furnace casings.

M. O. Johnston Oil Field Service Corp.
Los Angeles, Calif.

Johnston Oil Field Service Corp.
Houston, Tex.

M. O. Johnston Oil Tools, Inc.
Los Angeles, Calif.

81 and 82 Kansas Building

In attendance

M. O. JOHNSTON — BLAINE JOHNSTON, SR.
F. E. O'NEILL — W. M. BETTIS
R. G. WHEALTON — B. W. DAVIDSON

Products to be exhibited: Latest type equipment for the testing of oil and gas wells (formation tester).

A working model of the formation tester will be operated in a glass model of an oil well at half-hour intervals throughout the duration of the show.

Tyler Swabs.

Portable tool joint facing equipment.

Bottom-hole pressure recorders.

The Johnston & Jennings Company
Cleveland, Ohio

82 and 129 Oklahoma Building

In attendance

H. H. FLEMING — WM. H. McGUNAGLE
JOHN M. McGREGOR — ARTHUR DOOLEY
FRED THILENIUS

Displaying complete line of tank equipment including breather valves, flame arrestors, swing line equipment, automatic tank gauges, equipment for pressure tanks, also still safety valves, look boxes, etc., for the refinery.

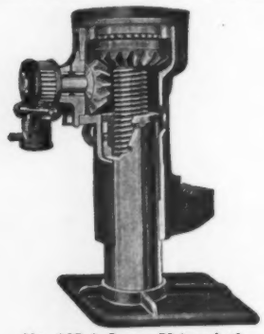
The Joyce-Cridland Co.
Dayton, Ohio

49 and 50 Texas Building

In attendance

HUSTON BROWN HARRY B. BURLOW

The company will display its complete line of mechanical and hydraulic jacks for oil field service. These will include the Joyce standard speed ball bearing geared screw jacks of 25, 35 and 50 tons capacity



No. 165-A Joyce 50-ton jack

for skidding derricks and field service—the Joyce 20-ton automatic lowering rig builders jack, the original and pioneer jack of this type—the Joyce journal jacks from 15 to 50 tons capacity for refinery shops and field service—and the No. 78 Joyce 15-ton emergency jack for trucks and boiler setting.

Of special interest will be the Joyce Liftmaster hydraulic jacks, made in 15 sizes from 1½ to 30 tons capacity. These modern and powerful jacks are particularly recommended for truck service and for numerous duties around the rig.

The S. M. Jones Co.
Toledo, Ohio and Tulsa, Okla.

18 and 19 Oklahoma Building

In attendance

P. C. JONES H. K. BROWNING
L. J. PUNDT HOLT McWORKMAN
D. O. JOHNSON

Many interesting things connected with sucker rods will be featured in mural-montages. The field engineering department is shown collecting the facts in the field through well studies. The research work in the laboratory is illustrated, through which the use of new steels is developed, and added strength and ductility are given to sucker rod materials. Other murals show how these facts, collected from field and laboratory, are used to manufacture better sucker rods that fit the various pumping conditions. Also pictured will be the subject of product service, showing how facts about care and handling of sucker rods are utilized for better field practices.

The center mural of the exhibit shows the motion picture crew making the talking picture "Progress in Sucker Rods." Here Rodney, the hitch hiker, who crashed the movies in Oklahoma to show how not to handle sucker rods, is getting instructions from the motion picture director, just before one of the scenes are shot.

Jones & Laughlin Steel Corp.
Pittsburgh, Pa.

12 to 16 Oklahoma Building

In attendance

H. E. LEWIS L. M. PARSONS
W. H. WIEWEL JOHN O'H ANDERSON
H. L. MILLER C. E. SWINDLER
H. W. GRAHAM A. P. HOLLOWAY
A. H. QUAY H. L. SUMMERS
A. E. CROCKETT W. R. K. SCOTT
W. C. JAMIESON

The outstanding features of the exhibit will be the new and improved J & L Integral Joint Blue Ribbon seamless drill pipe, and actual demonstrations of the thread inspection routine practiced in the J & L tubular mills. These features will be displayed and conducted against a colorful background. Included, also, in the exhibit will be comprehensive displays of the full line of J & L tubular products for the oil industry, a map showing the location of oil field stores where J & L tubular products are available and samples of oil drums and containers formed of J & L strip and sheet products and J & L coke tin plate.

The J & L tubular products for the oil industry includes J & L Integral Joint Blue Ribbon seamless drill pipe, a specialty, developed and manufactured exclusively by Jones & Laughlin, and J & L seamless drill pipe, J & L seamless drive pipe, J & L seamless casing, J & L standard tubing—plain and external upset, J & L seamless line pipe, J & L seamless boiler tubes and J & L seamless and welded standard pipe.

The J & L mill thread inspection routine will be of particular interest to all oil men. Inspectors using the most advanced precision instruments will give a practical demonstration by checking threads on both pipe and couplings for correctness of pitch, depth, taper, size and thread contour, explaining each step in the routine as it is performed. Capable and well qualified J & L tubular mill inspection personnel will be available to answer questions guests may care to ask.

Kargl Aerial Surveys, Ltd.
San Antonio, Tex.

77 Scientific and Technical Building

In attendance

J. A. AMMANN F. CLAY McGAUGHY
GILARD KARGL Z. J. BOOTHE
F. A. MICELI A. J. MAXWELL

Description of exhibit: Compiling of fee ownership line maps through use of radial line controlled aerial photographs, aerial photographs showing contour lines plotted through the use of the Kargl stereotopograph. A new departure in projection of vertical aerial photographs in natural color, to be used as an aid in geological study and application.

Keasbey & Mattison Co.
Ambler, Pa.

35 and 36 Refiners and Marketers Building

In attendance

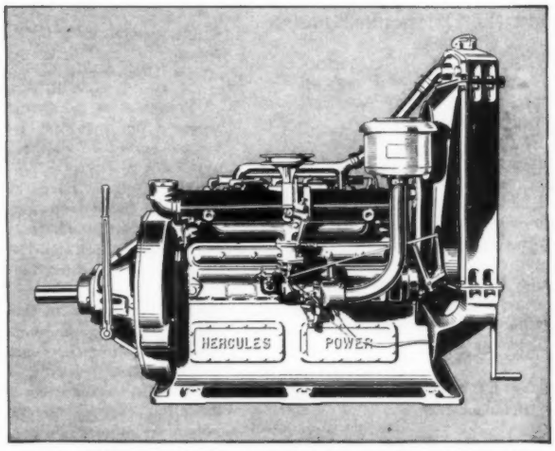
W. S. ACUFF, JR. H. W. DAVIS
D. W. WIDMAYER E. T. WHITE
B. F. COOMBS H. B. WATERMAN

Display consists mainly of photographs of oil refinery installations of the company's various types of asbestos magnesia insulations. The insulation featured to the greatest extent will be its Hy-Temp combination which is efficient as an insulation up to 1,900° F. Hy-Temp combination consists of an inner core of Hy-

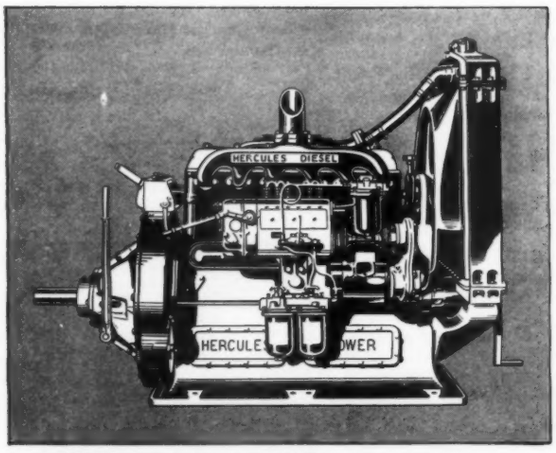
INVESTIGATE THE MERIT of McKISSICK!
Patented Oil Country Equipment at the International Petroleum Exposition.
AHEAD IN DESIGN • • • •
IN PERFORMANCE •
IN SAFETY FEATURES
"THAT'S WHY YOU FIND McKISSICK EQUIPMENT WHEREVER OIL IS PRODUCED"
BOOTH 90 KANSAS BUILDING
McKISSICK
PRODUCTS CORPORATION
Tulsa, Oklahoma.

HERCULES POWER FOR THE OIL FIELDS

TO EXTEND the already excellent distribution of Hercules gasoline, natural gas and Diesel engines and parts in the mid-continent field, Hercules has recently opened its own branch store in Kilgore, Texas, where a complete stock is carried and a staff of Hercules-trained engineers and mechanics is at the service of all users. Similar arrangements will follow shortly in both Houston and Odessa. Hercules Engines have long been distributed in Oklahoma and southern Kansas by the Worthington Machinery Corporation of Oklahoma,



The RXB, six-cylinder, 4½" x 5¼" low fire hazard, natural gas, open-type power unit, delivering 110 H.P. at 2200 r.p.m.



The DRXB, six-cylinder, 4⅛" x 5¼" Diesel open-type power unit, delivering 120 H.P. at 2000 r.p.m.

with stocks in Tulsa and Oklahoma City, and Hays, Kansas; in southern California by the Republic Supply Company of California, with stocks in Los Angeles; and in Pennsylvania by Bovaird & Company, with stocks in Bradford. The world's largest manufacturer specializing exclusively in the design and production of internal-combustion engines, Hercules has played an important part in the development of oil field machinery by supplying heavy-duty power of most advanced design for all types of modern oil-producing equipment.

HERCULES ENGINES

HERCULES MOTORS CORPORATION, Canton, Ohio

Oil Field Sales and Service Branch, Kilgore, Texas

America's Foremost Engine Manufacturer • Power Plants from 4 to 200 H.P.

See the Hercules Exhibit at the International Petroleum Exposition, Tulsa, May 14th to 21st, Booths 76, 77, 78, 133, 134, 135

Temp and an outer core of "Featherweight" 85 per cent magnesia which is one of the most efficient insulating agents that could be used. The inner core of Hy-Temp serves to protect the outer core of "Featherweight" 85 per cent magnesia from excessive temperatures as "Featherweight" 85 per cent magnesia itself will not withstand temperatures above 600° F. Hy-Temp combination is available in pipe and block form.

"Featherweight" 85 per cent magnesia will also be featured particularly in block form for the insulation of stills.

Packings suited for use in various branches of the petroleum industry, particularly the company's hot oil sheet packing will be featured as it has been recently improved to a very efficient point.

Kerotest Manufacturing Co.
Pittsburgh, Pa.

89, 90, 121 and 122 Oklahoma Building

In attendance

EDWARD G. MUELLER C. C. TREES
WALTER G. SWANEY SHEP F. MIERS
HARRY C. POTTS J. D. ISAACKS
CLYDE L. ALEXANDER
JOSEPH A. SWATON

KEROTEST will exhibit newly developed lines of well control systems in addition to its regular lines of cast steel valves, cast steel fittings, forged steel fittings and high-pressure oil field control chokes, throttle valves and miscellaneous specialties. The new KEROTEST well control system affords the utmost safety, economy and flexibility in all operations of drilling, running casing and running tubing and never leaves the wells without accessory control equipment unless the well is standing cemented.

Keuffel & Esser Company
Hoboken, N. J.

55 Scientific and Technical Building

In attendance

H. E. BOWMAN W. F. BIRKICHT

The entire exhibit will be devoted to K&E Wyteface steel tapes. Wyteface is an improved steel tape with deep black graduations on a crack-proof white surface as easy to read as a newspaper headline. It has a new resilience that prevents kinks or curls, and the permanent surface prevents rust or corrosion. Wyteface tapes in all sizes and types, in cases and on reels for every oil field requirement will be on display.

Key Company
East St. Louis, Ill.

55 and 56 Refiners and Marketers Building

In attendance

FRED KEY E. H. MOLLMAN
M. B. CROWE MAX MASEL
G. A. MILLER

A complete line of return bends for tube still, transfer lines, etc., together with tools for maintenance will be displayed. Also a working model of a pump operated by compressed air for elevating oil from bottom of wells.

Walter Kidde & Company, Inc.
Bloomfield, N. J.

87 Texas Building

In attendance

C. STRAIN W. L. WALKER
W. S. WALKER

Lux carbon dioxide fire extinguishing equipment in hand portable, wheeled portable and permanently installed system form will be exhibited. The portable extinguisher valve has been redesigned eliminating the possibility of skinning and pinching knuckles and fingers. The new valve hand wheel overcomes this objectionable feature. This new feature is available only in Lux carbon dioxide extinguishers. The specially machined cylinders will also be displayed on the Models 15 and 20 which are the standard size unit for the oil industry.

The wheeled Lux extinguishers have been completely redesigned with many improvements. The truck is now provided with four wheels instead of two which insures stability while the truck is standing idle or when it is being moved about. All four wheels are now rubber tired. The hose and horn are now protected by a streamlined covering which will give longer life to the hose and horn by protecting them from the weather. The parts which compose a Lux total flooding system which is permanently installed will also be displayed.

Kiddefoam generating devices and foam chemicals will also be displayed. Foam equipment is available for the protection of all flammable liquid hazards, whether in the production, development or distribution stage. Heretofore foam chemicals were not available for the extinguishment of fires in alcohol, acetone, keytone and similar liquids since these liquids dissolve the foam bubbles rendering them useless. Kiddefoam Special chemical has now been developed and is available for extinguishment of these fires. Kiddefoam Special chemical generates a highly cohesive and adhesive mass of foam which does not disintegrate or dissolve in these liquids.

Koppers Co.
American Hammered Piston Ring Division
Baltimore, Md.

74 and 75 Texas Building

In attendance

HARRY NOLAN J. M. KELLY
JOHN A. WORTHINGTON J. M. FULLER
BART ALDRIDGE E. S. FREEMAN, JR.

Features the company's new oil-cutter piston ring which is not only very satisfactory for automotive use but has been used with remarkable results in high-speed diesel engines.

The Koppers booth will feature the products of American Hammered Piston Ring Division and Bartlett Hayward Division, specifically American hammered piston rings and Fast's self-aligning couplings.

The general color scheme of the booth is copper and white. There is a large display of the name Koppers, matching in form the same "Koppers" that appears in all Koppers Company advertising. In the center section of the booth there are four large translites in color, featuring qualities of American hammered piston rings. On a shelf set at an angle of about 30 degrees, stretching across the entire center panel, are photographs of engines manufactured by the largest and most important engine builders in the country. In all these machines, American hammered piston rings are standard equipment. There are two end panels. The one on the left contains the original painting from which the 1938 American Hammered Piston Ring calendar was reproduced. On the panel at the right are mechanical views of the Fast's couplings, with an accompanying technical description.

In addition to this attractive background there will be exhibited actual Fast's couplings with enough of the metal cut away to show the inside construction. American hammered piston rings for oil field applications will also be exhibited.

The Kropp Forge Co.
Chicago, Ill.

36 and 37 California Building

In attendance

W. R. DAVIS J. H. DRAPIER
JOHN COLEMAN L. B. HOLT
ROY A. KROPP HOWARD H. HAWKINS

Will exhibit drop and hammered forgings for oil well machinery, and forged steel pipe flanges for oil field, booster and refinery use.

Landis Machine Co., Inc.
Waynesboro, Pa.

6, 7 and 8 Oklahoma Building

In attendance

C. N. KIRKPATRICK G. M. STICKELL
R. G. MUMMA J. R. FUNK
R. L. MOORE

The company will exhibit the 13⅜-inch LANDIS pipe threading and cutting machine with receding chaser die head. This machine is of particular interest to the production men of the oil industry and also to those in the transportation and refining divisions. The company will also show the 2½-inch LANDMACO single spindle threading machine. The LANDMACO threading machine is a production tool which may be used to an excellent advantage on maintenance and job threading operations.

The 13⅜-inch LANDIS pipe threading and cutting machine provides an efficient and an economical means for the cutting of accurate threads on casing, tubing, and drill pipe. This machine is being used by the manufacturers of oil well tubular goods and extensively in oil fields throughout the world. Its use will result not only in threads well within the tolerance specifications of A.P.I., but also in a material reduction in operating cost.

The 13⅜-inch LANDIS receding chaser pipe machine covers a wide diametrical range of pipe sizes from 4½ to 13⅜ inches, inclusive. Only two sets of chasers are required to cover the entire range of this machine as long as the pitch, thread form, and taper remain the same. This feature eliminates the necessity of frequently changing the chasers. The taper on the 13⅜-inch LANDIS pipe machine is accurately controlled and produced through sine bar which is adjustable and which gradually recedes the chasers as the head is propelled forward by means of a leadscrew. Set-up changes on this machine can be made quickly and accurately. It is geared for high threading speeds and is very simple to operate. The 13⅜-inch LANDIS pipe machine assures the accuracy for threads which is essential in making fast leak-proof piping assemblies.

The LANDMACO threading machine is a precision built tool designed primarily for threading of bolts, rods, etc., on a high production basis. This machine possesses the many inherent qualities of all LANDIS threading equipment. Quick set-up changes, high threading speeds, ease of operation, etc., in addition to the superior mechanical features which assure threads of the finest quality. The LANDMACO threading machine is used extensively by the manufacturers of valves, fittings, Diesel engines, oil tubular goods, and other equipment used in the oil industry. Its combined speed and efficient operation make it also an excellent tool for jobbing and maintenance work.

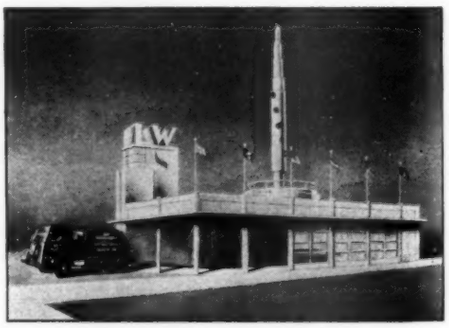
The LANDMACO threading machine has many exclusive mechanical features: hardened and burnished chrome nickel steel gears, antifriction bearings for all shafts, spiral bevel gear drive, die head spindle mounted on preloaded antifriction bearings, telescoping steel guards for the carriage ways, combination steel and felt wipers for the ways, and both horizontal and vertical adjustment for the carriage front. With all of these fatures combined into one unit, the LANDMACO threading machine is a machine that mechanically is comparable to no similar tool.

Both the 13⅜-inch LANDIS receding chaser pipe machine and the LANDMACO threading machine employ the LANDIS long-life tangential chaser. This chaser, which is very simple to regrind and which has an average tool life which has been conservatively estimated to be 10 to 20 times longer than that of the ordinary hobbed type die, has many distinctive features of economy and will produce threads well within extremely close tolerances.

The Lane-Wells Company
Los Angeles, Calif.

Block "V"

One of the most colorful and comprehensive exhibits in the history of oil shows is the aim of Lane-Wells Co. This exhibit, covering 1,440 square feet, will



be on the southwest corner of Block V, just north of the Scientific and Technical Building. The building will be of very modern design, and it will have a huge gun-perforator up through the center, surmounted by an American flag. At 10-foot intervals around the building will be flags of some of the other countries served by Lane-Wells Co.

The latest type of gun-perforator truck will be shown, manned by a regular field crew. Truck operations, including controls, weight recorders, depth measurement, et cetera, will be demonstrated without the actual firing of the gun. An assortment of gun sizes, cut-away models, chambers, loads, samples of perforations, and antimated movies of the complete story of perforating will be shown.

A complete line of packers and liner hangers will be shown, along with the latest development in bridging plugs.

Well surveying and directional drilling services will be demonstrated with a complete line of the va-

rious types of surveying instruments and cut-away models. There will also be animated moving pictures of oriented surveys, single-shot survey instruments and directional control of drilling wells, including Lane-Wells knuckle joints. This inside exhibit will also include the engineering phases of gun-perforation, design, and application—and other research investigations being conducted in the Lane-Wells engineering laboratories.

Larkin Packer Co., Inc.
St. Louis, Mo.

111 and 112 Oklahoma Building

In attendance

J. J. LARKIN, SR. — J. J. LARKIN, JR.
C. F. DOUGHERTY — MILT GREVE
H. S. LINDENMUTH — I. P. ALLEN
W. G. BAUMANN

Will show a complete sample line of Larkin products. Some of these samples are cut-out so that the internal construction of our products can be seen.

In the back of the booth there will be a large map pointing out all of the Larkin Service Points, the locations of warehouses as well as the headquarters for various salesmen.

Lebanon Steel Foundry
Lebanon, Pa.

79 and 80 Kansas Building

In attendance

A. J. McDONALD — FRED GROTTS
P. E. GERHARD

Exhibiting: Valve body castings, including christmastree valve bodies, drill bit bodies, slips, slush pump cylinders, various types of pipe coupling castings and various types of pump castings made of various alloys and stainless steel.

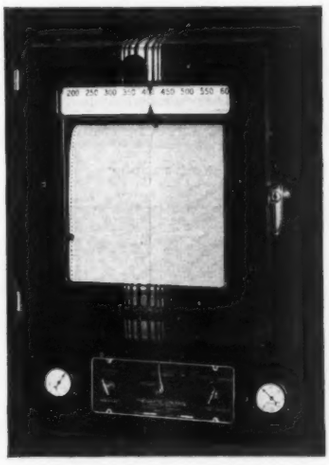
Leeds & Northrup Co.
Philadelphia, Pa.

29 and 30 Scientific and Technical Building

In attendance

M. E. GRIFFITH — R. E. HANSEN
G. C. GRAF

Micromax pneumatic control.—The newest of controls—which holds tower temperature to a selected control point with the steadiness essential to full efficiency—will be in operation. It offers definite operating and maintenance advantages. See the powerful pneumatic balance, the rugged pilot valve, the machine-like construction, which L.&N. has built into unit-type control embodying its Micromax recorder.



New Micromax pneumatic control

Micromax Rayotube control.—The temperature of filtering clay passing through a revivifying furnace can now be detected as it moves . . . continuously indicated, recorded and automatically controlled. Rayotube, the detector which makes this possible, is located safely outside of the furnace; it merely "looks" through a hole directly at the clay being plowed across the hearth. This equipment is shown as though in operation on a revivifying furnace. An accurate, dependable temperature guide, it eliminates uncertainty and waste—makes the use of fuller's earth or other revivifying media practical and economical.

L.&N. Universal pH indicator.—This new portable pH potentiometer reads directly in pH with glass, quinhydrone or hydrogen electrode. It is designed for high accuracy and maximum operating convenience. The instrument is equipped with electrodes and chemical supplies which are contained in the case.

Micromax temperature recorder.—A representative instrument is shown in actual operation. Uses a strip chart on which from 1 to 16 temperatures can be recorded legibly and read easily to the highest precision demanded of industrial instruments. Available in a wide choice of standard ranges.

L.&N. cabinet-mounted indicator.—Display model shows how effectively this instrument enables an operator to measure temperatures of near or distant couples with equal reliability. Through switches, the indicator may be connected instantly to any of a large number of couples.

L.&N. portable indicator.—Here is an opportunity to become familiar at first hand with this indicator which is so useful among plant instruments for temperatures taken at the operator's discretion. It is used to supplement recorders and controllers, replace them while they are serviced, make many kinds of tests—for a variety of intermittent temperature measurements.

Leland Equipment Co.
Tulsa, Okla.

Block C and 103, Outside

In attendance

H. R. LELAND — TOM ROBERTSON
H. R. DOWNS — J. C. GORMAN
R. L. THOMPSON — RAY DORWARD
FRANK SQUIRES — D. G. REEDER
G. T. HAMAN

Displaying Chicago pneumatic air compressors and other air equipment. LEECO pole trailers, Insley back hoe, Koehring crawler type crane, Koehring mixer, Kwick-Mix 3½-s mixer, Gorman-Rupp pumps of various sizes, electric air hose, Latham brakes, Wagner Electric Co.'s Auto-Motive air brakes, and numerous other small items of equipment.

Will also display one 35-kw. generator unit powered with a Case engine complete on skids including switch board and the whole covered with a steel canopy, and a 60-kw. generator powered with a Waukesha engine complete on skids including switch board and the whole covered with a steel canopy.

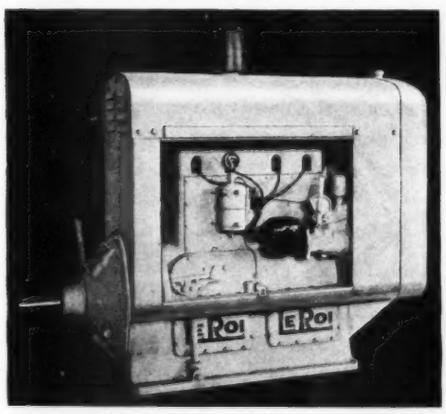
Le Roi Company
Milwaukee, Wis.

East End of Block R, Outside Space

In attendance

C. W. PENDOCK — J. R. FRANTZ
P. W. EELLS — W. R. KARLL
HARRY HUMMER — A. F. SHELLER
L. G. VALDES — D. W. MORTONSON
R. A. PRIDE

This company will exhibit nine units representative of its several lines of equipment developed specially to meet the needs of the oil industry.



Of especial interest is the modern line of Le Roi medium speed heavy-duty valve-in-head pumping engines. These are not just the usual industrial engines sold as an "oil field unit" but have extra-heavy flywheels, sturdy oil field type clutches, water-cooled exhaust manifolds, and many other special features which make them particularly desirable for this clase of service. A complete range of sizes is available and three representative units will be on display.

The rapidly increasing popularity of engine-driven electric generator sets makes these units of especial interest to men in all branches of the industry. Le Roi Company builds these sets in sizes of 1½ to 200 KW, and will display a new 15 KW unit, as well as a 4 KW and 2 KW set for rig lighting.

Drilling contractors and superintendents will have an opportunity to see the 12-cylinder 418-Hp. Le Roi drilling engine, the largest of a group ranging down to 92 Hp. The 6-cylinder, 209-Hp. engine also will be shown. These, as well as other Le Roi engines, can be supplied to operate on gasoline, natural gas, or butane.

Maintenance engineers will find the new streamlined, totally enclosed Le Roi AIRMASTER to be the very latest thing in portable air compressors. A 160 cubic foot model will be shown.

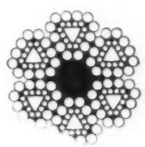
A. Leschen & Sons Rope Co.
St. Louis, Mo.

116 and 117 Texas Building

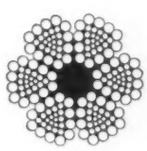
In attendance

W. C. HENNING — L. E. DRESSLER
W. G. JORDAN — L. W. WEYLER
E. E. LAMBERT — J. C. HOFFMAN
L. H. GAULT

The practical part of this company's exhibit will consist of a complete line of samples of such wire



Style B
Flattened Strand



"G"
Flattened Strand

ropes as are used today for the various oil field purposes.

These samples will include their well-known "HERCULES" (Red-Strand) Wire Rope in Round Strand, Flattened Strand, Steel Clad and Non-Rotating constructions.

While this company introduced the Flattened Strand construction of wire rope into this country a number of years ago and has been supplying it extensively ever since, it has recently developed a more flexible type which it calls "G." It is also preforming both "Style B" and "G," which makes for smoother spooling and easier handling. Both of these types of the Flattened Strand construction are stronger, more compact, and offer more resistance to wear and tear than any Round Strand hoisting construction in the same size and grade.

Lewis Brothers Co.
Tulsa, Okla.

70 Kansas Building

In attendance

PAT S. LEWIS — FLOYD E. LEWIS
BO. BARDSLEY — M. L. JACOBS

Will show the Jacobs cathodic wind electric generator for pipe line protection. This cathodic unit should be very interesting as it is new. It was first shown at the Houston show last fall.

The company's other lines, International Harvester Co., Bucyrus Erie and Muskogee Iron Works will be shown in their space.

The Lincoln Electric Co.
Cleveland, Ohio

201, 202, 249, 250 Oklahoma Building

The new diesel engine arc welding machine, just recently announced by the Lincoln Electric Co., will be the feature of the arc welding equipment exhibits.

First placed on the market by any American manufacturer, the new welder compares favorably with gasoline engine driven arc welders in price, weight and operating speeds. The new welder brings the economies of diesel operation to construction of pipe lines and other applications requiring engine driven arc welders. The machine is said to reduce fuel costs as much as 70 per cent.

The Lincoln exhibit of arc welding equipment will also include latest models of stationary and portable motor driven "Shield Arc S.A.E." arc welders which introduced dual continuous control last year. The value of this method of arc welding current control will be demonstrated together with the welding of various metals.

The demonstrations will include welding with recently developed electrodes: "Fleetweld 8" for high speed single pass fillet welding, "Fleetweld 9" for fast

production of butt welds in heavy plate, "Chromeweld 4-6" for 4 to 6 chrome steels, and "Transweld" for use with small transformer type arc welders. Other Lincoln electrodes which make it possible to arc weld any metal used to any extent industrially, will be included in the electrode display. Latest developments in arc welding accessories and supplies, as well as "Linc-Weld" motors will also be shown.

Link-Belt Company
Chicago, Ill.

61-62-63 Texas Building

In attendance

PETE WALLACE	BOB HORTON
BILL ABELE	RED PENICK
F. S. O'NEIL	C. R. WEISS
C. W. SPALDING	G. M. SHARER
H. L. STRUBE	A. H. BOIKE

The display will include the latest design of Link-Belt vibrating screen for reconditioning rotary mud; an operating chain drive unit incorporating the various types of chains used on drilling rigs; and samples of Silverlink roller chain, the company's line of Hyper and Red-Hed rotary drilling chains, and other power transmission parts. Black-faced "Amos" will be the official greeter.

LubriKup Company, Inc.
Williamsport, Pa.

104 Kansas Building

In attendance

W. M. CONNOR	C. S. VOGEL
M. L. FRAZIER	W. P. WOOD

A composition pump cup developed by this company that has proven very successful in affecting material savings in operating costs of power pumps. To meet various conditions, JerkerKups are regularly furnished in the following types:

Standard—For pumping oil, gasoline, water, basic sediment, etc., not over 140° F. and requiring delivery pressure not over 500 pounds per square inch.

High Test—For pumping oil, gasoline, water, basic sediment, etc., not over 250° F. and delivery pressure not over 1,500 pounds per square inch.

Spec. Ang.—For pumping acid (15 P.C.H.C.I.) oils, gasoline, naphtha, etc., not over 180° F. and delivery pressure not over 600 pounds per square inch.

LubriKup JerkerKup

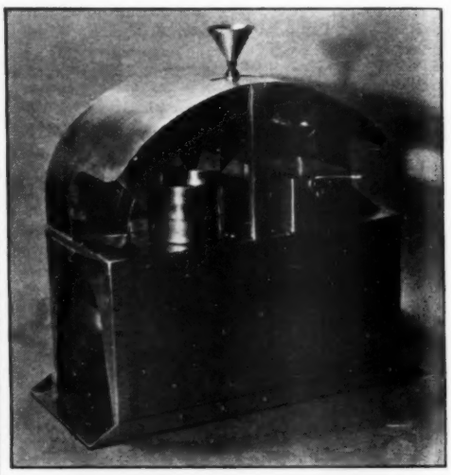
Lucey Products Corp.
Tulsa, Okla.

Block R

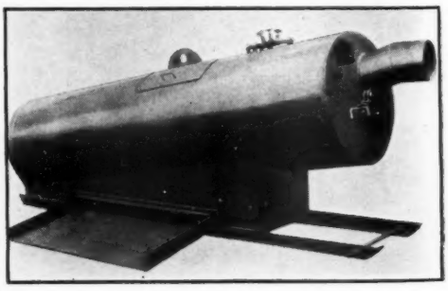
In attendance

JOHN CHAPMAN	R. S. LEVERING
J. A. BEST	O. H. ATTRIDGE
J. N. DWIGHT	

The Hudson-Boucher automatic shale separator is of unique design and entirely different from any other machine which has been introduced for the separation of cuttings and other foreign matter from drilling fluid. Operated by the gravity flow of the drilling fluid against turbine blades, the machine requires no other motive power. Unlike the conventional "shaker" type of separator the Hudson-Boucher machine effects complete separation by the rotation of the screen unit as the fluid passes through. Clean mud passes through the screen, down into the return trough, while cuttings are discharged out the open end of the screen cylinder.

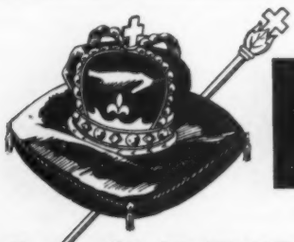


Mud sampler



Shale separator

Dissatisfaction with the methods of sampling the mud at wells being drilled with rotary drilling equipment both for its drilling properties and for the geological information to be obtained from cuttings led to the development of the Hayward automatic mud sampler. This machine is placed in the mud ditch in such a manner that the flow of the drilling mud against its paddle wheel causes it to pick up continuous samples of mud itself by means of spoons attached to the blades of the wheel. These spoons are arranged to deposit mud only in the first of two containers and mud and cuttings in the second, which is a nest of screens continuously washed with a stream of clean water.



KING

of all DRILLING MACHINES

DESIGNED FOR SERVICE AND ENDURANCE

The New Model "66"

WICHITA FALLS SPUDDER

SPECIALLY DESIGNED AND BUILT PRACTICALLY FOR DRILLING 5,000 FEET; CLEANING OUT TO 7,000 FEET

COMPARE . . . . .
Frame—6x18x26.
Mast—5x14's, 52 feet in length.
Band wheel—9'x15" runs 14" belt.

WRITE FOR OUR 1938 CATALOG

CLARK MACHINE CO.

Manufacturers

SPECIAL OIL FIELD MACHINERY • WICHITA FALLS, TEXAS

In the manner truly continuous and proportional sampling of the drilling mud cuttings is accomplished automatically.

Lufkin Foundry & Machine Co.
Lufkin, Tex.

Mid-Continent Drive between Pennsylvania and Texas Avenues

In attendance

D. A. REID

The company will have on exhibition:

One TC-OA-60 Unit, driven by a single flywheel 40-horsepower, single-cylinder Cooper-Bessemer engine.

One 9-foot stroke Twin Crank Assembly, equipped with No. 51 gear box, driven by a General Electric motor.

One TC-2A-26 Assembly, driven by a CHK Waukesha engine.

One TC-3-18 Assembly, driven by a No. 300 McCormick-Deering engine.

One TC-5-7 Assembly, driven by an XAH Waukesha engine.

One TC-6-5 Assembly, driven by a 2-cylinder Hercules engine.

The company will also show: 1 No. 17 Jack; 1 Single Crank No. 31 Unit; 1 Counterbalanced stroke post complete with knockoff; 1 No. 5 Gear Box cut away to show the operation and construction of the gears.

The Lunkenheimer Co.
Cincinnati, Ohio

67 and 68 Oklahoma Building

In attendance

HARRY A. BURDORF JOS. WALDECK
JOS. A. BIRKHEAD M. N. STICKEL
D. R. DAVIS E. R. TIEBERMAN

The Lunkenheimer Co. exhibit will include a complete line of bronze, iron and steel valves, boiler mountings, lubricating devices and other specialties suitable for oil field and refinery service.

Of special interest will be a line of 125-pound bronze gate valves consisting of a double wedge disc pattern with taper seat and rising stem and a single wedge disc pattern with taper seat and non-rising stem.

Also featured in the exhibit will be a recently developed line of bronze globe, gate and check valves rated at 350 pounds SP and 1,000 pounds GLP for oil well drilling operations and high pressure gas, oil and hydraulic service and steel valves for similar services.

Other lines of interest will be those of plug type "Ferrenewo" and "Renewo" valves from 150 to 300 pounds SP.

The line of corrosion resistant valves on exhibit will include "Causul" metal gates, "SA" valves, all-iron "Ferrenewo," all-iron "King-clip" and the iron automatic liquid gauge with stainless steel trim.

Other products on display will be the "Alvor" constant level oil control—a device for maintaining the proper oil level in ring oiled bearings; non-metallic disc valves, new air nozzles, steel needle valves, etc.

The Lufkin Rule Co.
Saginaw, Mich.

83 and 84 Scientific and Technical Building

In attendance

E. H. MEIBEYER R. M. BENJAMIN

Lines exhibited will be steel and woven measuring tapes of all kinds, including especially tank gauging tapes, tank strapping tapes, "Derrick" tape, plumb bobs, etc., steel tape-rules, folding rules of wood, steel and aluminum, pocket tapes, micrometers, calipers, dividers, combination squares, steel scales and depth, radius, center, screw pitch, surface, planer, telescoping and similar gauges, i.e., a general line coming under the head of machinists or precision tools.

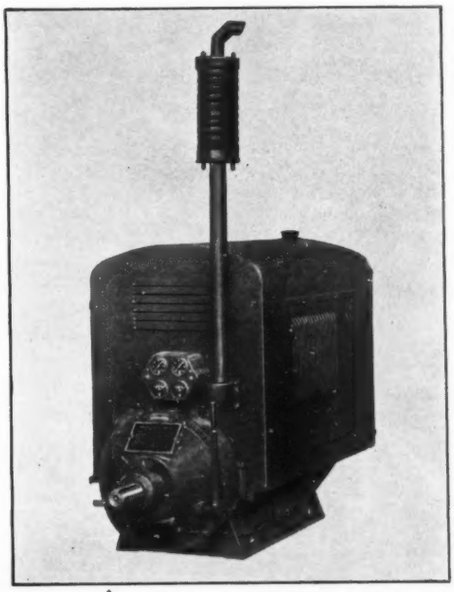
Lycoming Manufacturing Co.
Williamsport, Pa.

49, 259, 261, 262 Oklahoma Building

In attendance

E. D. HERRICK G. B. BARR
W. G. DURANT Z. H. WHITEMAN, JR.

Exhibiting its AG Series oil well pumping power



6-cylinder pumping power unit

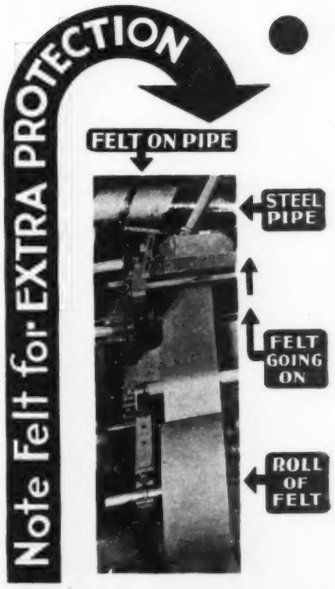
With The HILL-HUBBELL Process we do not just sell "coating"
We sell ADEQUATE PIPE PROTECTION

Buy STEEL PIPE
Mill Coated-and-Wrapped
at any of these Mills

Jones & Laughlin Steel Corp.
National Tube Company
Republic Steel Corporation
Spang, Chalfant, Inc.
The Youngstown Sheet & Tube Company

A request on your letterhead will bring a copy of "Pipe Protection" which describes our process in detail.

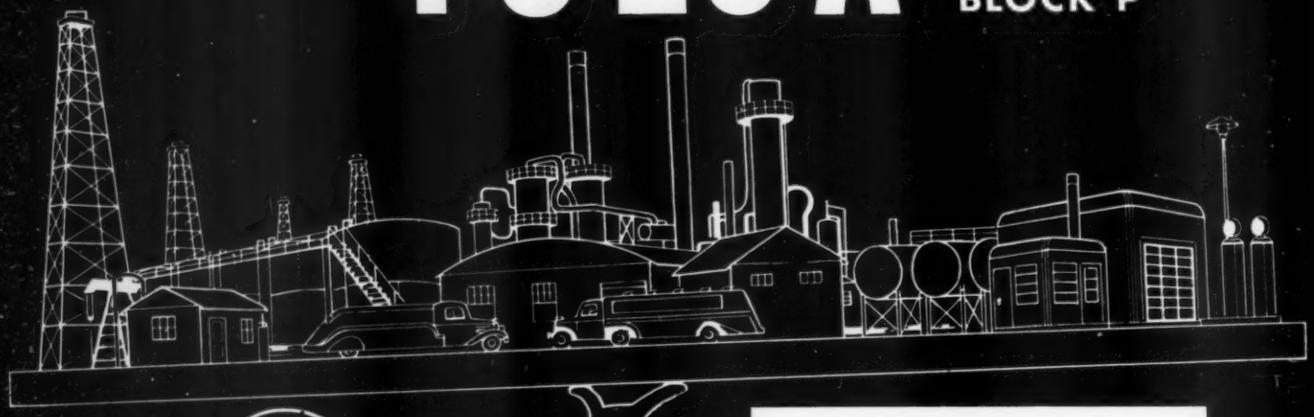
"Coating" of STEEL PIPE has changed from the uncertain hit-and-miss process of a few years ago. Leading engineers are not now interested in "coatings" as such, but they are very much interested in ADEQUATE PIPE PROTECTION. The average job of "coating" of a few years ago, now is known to be inadequate; at that time there was no standard of PROTECTIVE EFFICIENCY to use as a yardstick. Ten years ago the HILL-HUBBELL Process revolutionized PIPE PROTECTION by instituting a mechanical process of application at the pipe mills. Its superiority is now generally recognized. An important HILL-HUBBELL feature is the application of a bonded wrapping of FELT for shielding reinforcement. This gives additional strength and prevents soil-stress distortion. Remember — the HILL-HUBBELL Process gives ADEQUATE PIPE PROTECTION. It is worthy of your serious consideration.



Schematic Construction of Specification TAX-1

GENERAL PAINT CORPORATION
HILL, HUBBELL & CO. - Division - Cleveland, Ohio
TULSA - SAN FRANCISCO - LOS ANGELES - OAKLAND - PORTLAND - SEATTLE - SPOKANE

See the **BUTLER**
EXHIBIT AT
TULSA
OUTSIDE SPACE
BLOCK P



BUTLER
OIL FIELD, REFINERY
BULK STATION AND
SERVICE STATION
TANKS

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BUTLER
OIL FIELD, REFINERY
PIPE LINE, BULK STATION
AND SERVICE STATION
Ready-Made
STEEL BUILDINGS

TRAILOW BUTLER TANKS
AND
TRUCK TANKS
PLUS 120 OTHER OIL EQUIPMENT ITEMS

•

DRANE
OIL AND GAS SEPARATORS

BUTLER MANUFACTURING COMPANY
KANSAS CITY, MO. MINNEAPOLIS, MINN.

units which are rated at 20 to 45 hp. In addition we will show a 10 KW and a 40 KW engine driven generator plants which operate on natural gas. The 40 KW plant will operate during the entire show. The company will also exhibit a sectioned engine which will show all important features of construction of AG Series engines.

Macnick Co.
Tulsa, Okla.

260 Oklahoma Building

In attendance

G. E. NICHOLSON J. C. YUNKER
CHARLES R. RIDLEY

Exhibits feature time devices. The exhibit consists of time bombs, intermittent action controllers, parking meter time units, driftmeters, and the new Macnick chart clock.

Macwhyte Company
Kenosha, Wis.

69 Oklahoma Building

In attendance

H. M. ROBINSON (Wire Line Robbie)
F. J. NELSON H. E. SAWYER
WILLIAM C. RUSSELL F. E. BENNETT
GOODWIN JOHNSTON

Displaying specially designed wire lines for rotary drilling, and cable tool drilling. These will include drilling lines, sand lines, cleaning out lines, winch lines, and special slings.

Of interest to pipe line contractors will be the company's special hoisting lines and special braided wire rope slings for the handling of pipe. These braided wire rope slings are made from endless elements of wire rope and are as flexible as manila rope, and about one-sixth the weight of chain, but with the strength of wire rope.

In addition grommets or endless wire rope will be displayed.

The company's exhibit will be complete on wire rope and wire rope slings used throughout the oil fields everywhere.

Magneto Ignition Co.
Tulsa, Okla.

132 Oklahoma Building

In attendance

R. E. DAY M. C. ELWORTHY

Products to be exhibited:

Wico magnetos	Willard batteries
K-W magnetos	Delco batteries
Bosch magnetos	Sterling ignition cable
American Bosch magnetos	Stromberg carburetors
Bendix magnetos	Bendix steering stabilizer
Edison Splitdorf magnetos	The New RotaPiston pump
Fairbanks Morse magnetos	Fletcher air mixing valve
Eisemann magnetos	Bendix brakes

Magnus Chemical Company
Garwood, N. J.

54 California Building

In attendance

W. E. O'MEILIA T. F. O'BRIEN
A. ECKHARDT R. W. MITCHELL

Exhibiting a complete line of cleaning materials for oil industry needs, including materials for the cleaning of oil field equipment, refinery equipment, transporting equipment and for the equipment and properties of the oil marketer.

Maloney Tank Mfg. Co.
Tulsa, Okla.

Block V—Cushing Lane

In attendance

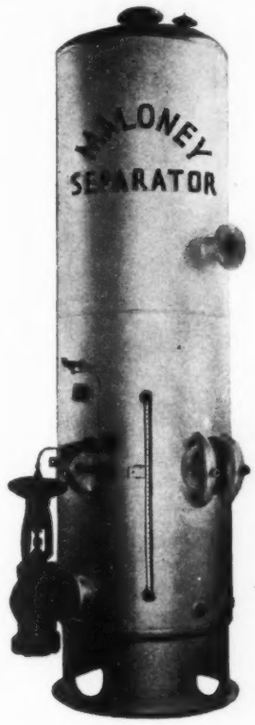
J. S. WARREN J. C. HIGHFILL
L. D. HESS R. H. GUTHRIE
C. W. STEVENS JOE PORTILLO
E. G. MURPHY JACK CALLOWAY
N. B. GARNER CARL FOLKNER
ROY TARRANT

Exhibit will consist of:

Actual installation of a regular Maloney bolted steel tank with standard paint job consisting of priming coat of red chromated iron oxide paint and exterior finish coat of superior aluminum paint.

Actual installation of a Maloney bolted steel tank with "double hot-dip" galvanized coating, applied after fabrication.

Actual installation of Maloney galvanized stairway and walkway.



Installation of several Maloney separators, including one demonstration separator in action.

Manning, Maxwell & Moore, Inc.
New York

19 Scientific and Technical Building

In attendance

M. W. BLACK C. B. IVES
O. W. MULLER C. H. GRAESSER

Line of American temperature control instruments, with the latest models of reset devices and valve positioners. Incorporated into one of these control systems will be a pneumatic transmission system for transmitting temperature indications and recordings over a considerable distance.

An additional feature of the exhibit will be the Ashcroft American pneumatic transmission system for pressure and temperature indication alone.

There will also be on display a line of American dial and indicating thermometers, Ashcroft American Duragauges for refinery service and Consolidated safety valves.

Consolidated oil still relief valves will also be shown as will the Hancock line of union bonnet valves, globe valves and duravalves.

Manzel Brothers Co.
Buffalo, N. Y.

50 Oklahoma Building

In attendance

ALBERT S. ISCH W. C. JACKSON

Exhibiting a very complete line of force feed lubricators and chemical feeders, including working models of the Model "25D" and Model "94D" lubricators.

The Model "25" has been designed especially with the needs of the oil fields in mind. It is ruggedly constructed to withstand rough usage and to pump against the high pressure now generally in use in the oil fields. It has a wide range of feed, and extra large reservoir capacity. All the working parts are enclosed in the reservoir and work in oil continuously and any complete pumping unit may be removed without stopping the lubricator or the equipment on which installed, and without interfering with other units.

The Model "94" lubricators are of the liquid sight-feed type. In this model a single-plunger pumping unit draws the oil from the reservoir and forces it through a liquid-filled sight glass directly to the point to be lubricated. These lubricators are fitted with tubular sight glasses, and are guaranteed to withstand 1,500 pounds pressure, and the sight feeds are equipped with "Manzel" sight feed filling screws which enable the operator to refill the glasses at any time without disconnecting the oil lines. All plungers are oil sealed, an exclusive "Manzel" feature. The illustration shows a 3-feed Model "94" with left-hand ratchet drive.

In addition to the lubricators this firm is also showing a complete line of the Series "60" chemical feeders for injecting chemicals into oil lines when treating oil. These feeders force the chemical into the oil line in

Seven pint, three feed left hand ratchet drive Model "94" with horizontal outlets

exact proportion to the amount of oil being pumped, and may be regulated to supply any desired amount. The entire driving mechanism is enclosed in an oil tight case, fully protected from dust, and operates in a bath of oil at all times. The pumping unit, the only part which comes in contact with the chemical, is a simple, single-plunger pump, with packed stuffing box and plunger and with adjustable plunger stroke, permitting very accurate feed regulation. The pumping unit is placed on the outside of the feeder where it is readily accessible at all times. Feeders can be furnished with or without sight feeds; also with or without chemical tanks.

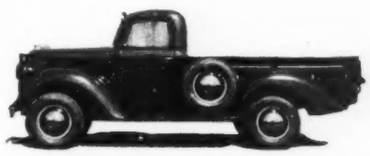
The Marmon-Herrington Company, Inc.
Indianapolis, Ind.

Block W

In attendance

A. W. HERRINGTON HAROLD L. FISHER
C. ALFRED CAMPBELL BERT DINGLEY
CHARLES AMBROSE

The Marmon-Herrington Company, Inc., engineers and manufacturers of high-traction vehicles will again show the latest developments in All-Wheel-Drive trucks and high-speed Track-Laying tractors.



In the display will be one All-Wheel-Drive unit which is being shown for the first time. This new unit is the Marmon-Herrington All-Wheel-Drive Ford V-8 1-ton truck. With the addition of this unit the company offers a complete line of All-Wheel-Drive trucks from 113½-inch to 216-inch wheel-base and load capacities from one-half ton to 25 tons.

Making its appearance for the first time at the Tulsa Exposition is the high-speed Track-Laying tractor with rubber tracks. Because of its speed capabilities (up to 30 miles per hour) and remarkable maneuverability this unit has opened an entirely new field for the crawler type tractor.

Marmon-Herrington All-Wheel-Drive vehicles are widely known and extensively used throughout the oil production industry, both in this country and abroad.

The company's exhibit will occupy the north half of space "W" where a representative selection of these All-Wheel-Drive and Track-Laying vehicles will be on display and available for demonstration.

Martin-Decker Corp.
Long Beach, Calif.

15 Texas Building

In attendance

E. L. DECKER L. A. CRAWFORD
JACK CLEMENS

Exhibit will consist of the regular line of drilling control instruments which the company is currently manufacturing, with one or two new items which will

At the Petroleum Exposition Ask How You Can . . .

Representatives of many Electric Power Companies in the Mid-Continent and Gulf Coast will be at the Petroleum Exposition to give you facts concerning the use of Purchased Electric Power for drilling . . . production . . . pipe line . . . and refining.

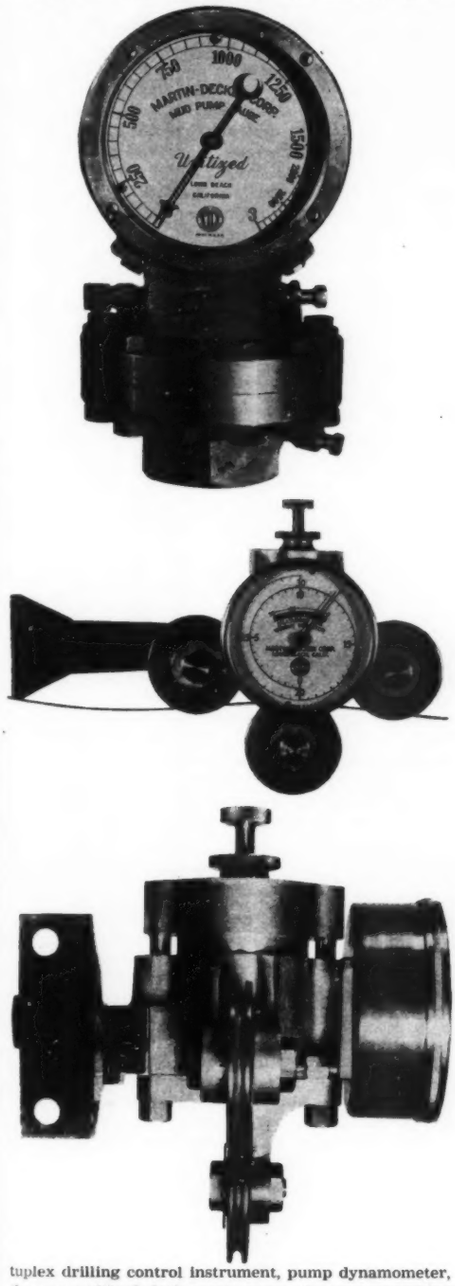
But regardless whether or not you go to the exposition, you should know the real truth about how Purchased Electric Power increases efficiency and profits. Ask your nearest Electric Power Company for facts concerning your power problems.

POWER—WHEN YOU NEED IT—AT A COST WHICH ALLOWS LARGER PROFITS!

PETROLEUM ELECTRIC POWER CLUB

be on exhibition for the first time during the Tulsa show.

The articles to be exhibited will include: Quin-



tuplex drilling control instrument, pump dynamometer, the new unitized slush pump gauge, the new measuring line weight indicator, clipper type weight indicator, and a new instrument to be displayed for the first time at the Exposition.

Mason-Neilan Regulator Co.
Boston, Mass.

27 and 28 Scientific Building

In attendance

F. K. MORRISON — E. A. BIANCHI
PAUL CONDIT — C. W. WOOD

The feature of the Mason-Neilan exhibit will be control valves designed for refinery service. These valves will include several advanced features which should make them of particular interest to refinery engineers.

The Masoneilan instrument line will also be displayed.

C. A. Mathey Machine Works
Tulsa, Okla.

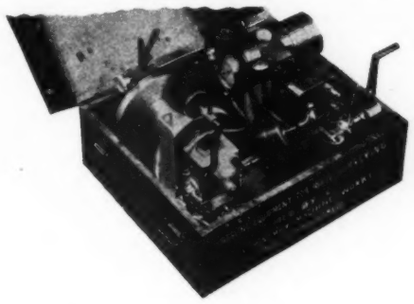
116 Oklahoma Building

In attendance

C. A. MATHEY — L. V. ORTON
ARLIE ZUMWALT — G. C. ZUMWALT
QUINTON WHITWORTH — C. E. SIMPSON
LLOYD ELKINS — DeWITT BROWN
FRANK RUDROW — R. GREENWOOD

Equipment to be shown:

Porta-Reel unit for well surveying which is made as self-contained and powered unit or as unit for car



Porta-Reel Unit—for well surveying. Complete unit is assembled in a sturdy wooden box, can be carried in back of coupe without extra equipment. Also made with power take-off.

mounting with power from take-off. Also will show gas test equipment, including gas test compressors and vacuum pumps, measure meter, and oil field specialties.

McCord Radiator & Mfg. Co.
Detroit, Mich.

72 and 73 Oklahoma Building

In attendance

W. J. POWERS — J. S. LYALL

The exhibit will consist of a new and attractive background which will form a setting for a complete line of lubricators for oil field use. The following products will be shown:

Various types and sizes of "SF" and "LD" Lubricators for general oil field use.

McCord chemical pump equipped with ratchet drive, electric motor drive and the popular air or gas motor drive.

McCord Class "SP" slush pump with cut-away sections illustrating the operation as well as the accurate and sturdy mechanism used.

One of the largest lubricators used in production today—a 19-feed "SF" type—will be shown in operation.

McCord or McKim gaskets for oil field and refinery use. Various types of construction will be shown —monel, aluminum, copper and in all metal as well as composite construction with an asbestos filler.

McCord unit heaters. This complete line of unit heaters is another product which has wide use in the oil field. Unit heaters are the modern and economical method of heating large buildings, warehouses, offices and service stations. They may be used with the regular steam or hot water heating system or hooked up to utilize the exhaust water from gas or diesel motors.

McKissick Products Corp.
Tulsa, Okla.

90 Kansas Building

In attendance

W. H. McKISSICK — C. B. JOHNSON
H. V. FLEMMING — HUGH ROBINSON

Will exhibit McKissick safety tubing blocks, floor blocks, snatch blocks and construction blocks. Also the

Tubing block

McKissick tubing catcher, McKissick tubing bleeder, Peerless and McKissick stuffing boxes, and Peerless all-steel load binders. Of special interest will be the McKissick tubing catcher complete with anchor attachment, which not only protects tubing against falling in the hole, but permits anchoring of tubing at any point by one simple operation, to prevent wear on tubing couplings and increase production. This catcher is short in length, with loosely fitting parts and ample clearance to insure against failure due to paraffin and corrosion.

Also of interest will be the McKissick safety floor block, which is completely guarded for safety, and is equipped with a universal joint to allow the block to travel in any direction with the line which provides for a minimum of wear on the line and on the sheave.

Merck & Co., Inc.
Rahway, N. J.

80 Scientfic and Technical Building

In attendance

MR. FALKE — MR. CULWELL

Illustrating the use of the purest grade of reagent chemicals in the laboratory. Dramatic illustrations will connect important works of engineering with the preliminary testing that is responsible for complete efficiency and dependability of materials. The main purpose of the display is to emphasize the importance of selecting chemicals that meet with the highest specifications for purity and uniformity.

Mid-Continent Petroleum Corp.
Tulsa, Okla.

19 Refiners and Marketers Building

The booth will feature an animated display of the exclusive upper cylinder lubrication features of D-X and D-X Ethyl lubricating motor fuels.

Mid-Continent Pump Supply Co.
Tulsa, Okla.

32 and 33 California Building
Mid-Continent Supply Co. Building
Bovaird Supply Co. Building

In attendance

ROY A DUNBAR — A. D. LARSON
RALPH VAN MATRE — M. R. BARTON
T. G. SMITH — C. C. MILLER
M. W. O'HAVER — DON E. SCHNOBRICH
G. F. GRAHAM — W. A. HUBBARD

Exhibiting Pacific and Oil States oil well pumps; Moloy metal pump liners; streamlined valves and pump fittings.

Mid-Continent Supply Co.
Fort Worth, Tex.

Mid-Continent Supply Co. Building, corner of Drake and Texas Drive

In attendance

K. W. DAVIS — D. H. THORNBURY
J. A. DAUGHERTY — J. C. HALBERT
F. JOHN — R. O. MOORE
P. J. DASEY — C. D. HELM
J. E. SNODDY — A. S. GEORGE
J. B. CHAMBERS — T. M. CONE
H. E. HAMILTON — W. I. WEST
O. A. SCHILLING — H. McMURRY
R. L. McANALLY — F. R. FILES
G. H. CANTERBURY — G. C. COLWELL
A. E. LeCLAIRE — R. C. TUCKER
T. P. TARWATER — G. A. WEAD
C. M. FLEEMAN — G. W. WALTERS
S. W. BACKUS — C. R. BROOKS
F. J. SPURLOCK — O. B. ALBRITTON
J. E. EVERROAD

This company will exhibit:

Mid-Continent-Cummins Model M-2-L V-belt mechanical rotary rig drive:

Two Model LI-600 Cummins cold starting full diesel engines.

One Mid-Continent Model M-2-L rig drive.

One Ideco two-speed reversing clutch countershaft.

Mid-Continent-Cummins-Allis-Chalmers Model EM-2-L electrical-mechanical rotary rig drive.

One Allis-Chalmers 250 KW 1,200 r.p.m. 350-volt direct current generator 40° C. continuous rated.

One Allis-Chalmers 300 hp., 1,000 r.p.m., 350-volt enclosed forced ventilated type hoist and drill motor.

One Allis-Chalmers wash-down unit with 3 hp. D.C. motor and centrifugal pump.

Two Model VLP-1202 Cummins cold-starting full-diesel power units, 12-cylinder, four-cycle, 7- x 10-inch, each rated 450 hp. at 800 r.p.m.

Two Model LI-600 Cummins cold-starting full diesel

engines, six-cylinder, four-cycle, 7- x 10-inch, rated 225 hp. at 800 r.p.m.

Cummins-Wilson "Atlas" model drawworks and chain transmission assembly including:

Wilson "Atlas" Model drawworks.

Two Model LI-600 Cummins cold-starting full-diesel engines, six-cylinder, four-cycle, 7- x 10-inch, rated 225 hp. at 800 r.p.m.

One Model HP-600 Cummins cold-starting full-diesel power unit, six-cylinder, four-cycle, 4⅞- x 6-inch, rated 125 hp. at 1,800 r.p.m.

Emsco forged steel "Fabriform" power slush pump, 7¾- x 16-inch, recommended maximum horsepower input, 300 hp. at 50 pump r.p.m.

Emsco-Cummins Model 16-T D-110 double reduction twin crank portable beam well pumping unit driven by model HP-400 Cummins four-cylinder four-cycle full-diesel engine, convertible to natural gas operation.

Mid-Continent-Cummins rotary rig utility (or auxiliary) unit consisting of Model H-4 Cummins four-cylinder, four-cycle full-diesel engine, convertible to natural gas operation.

Model HP-601 Cummins cold-starting full-diesel power unit complete operating on diesel fuel, otherwise identical to the similar unit which will be operating on natural gas fuel.

Cutaway Model of Cummins H-4 engine showing cross-section of all parts of the engine.

Miscellaneous important parts of Cummins diesel engines including crankshafts, single fuel pump and distributor system, injectors, etc.

Bethlehem A.P.I. "Mayari X" chrome nickel steel full-length normalized corrosion resisting sucker-rods with carburized hardened, ground, and cadmium coated couplings, including display of Bethlehem's exclusive methods of fully protecting rods for handling, loading, in transit, unloading, and stocking.

A-Y underpull straight line pump jacks—the only jack built without bearings.

Bethlehem (Williamsport) oil country wire rope with patented "Uni-Zact" core.

Naylor spiral lock-seam electrically welded type "A" surface casing with threaded joints.

Naylor sprial lock-seam electrically welded line pipe.

Emsco "engineered" rotary brake lining sets and other types of brake lining.

Pacific-Mid-Continent oil well pumps—complete including cutaway models.

Mid-Continent electroloy and cast steel full opening swing check valves.

Mid-Continent automatic relief valves for oil pipe line service.

Mid-Continent steel surge chamber for alleviating surge in oil pipe lines.

Ludlow valves and fire hydrants.

Harrisburg Engineering Co.'s forged steel regular and "Diamond Special Alloy" steel slush pump liners, forged steel bull plugs and companion flanges.

Multi-Seal rivets—front drive and mechanical.

Mid-Continent "Super-Famous" rotary hose and other Famous brand mechanical rubber goods.

Electroloy cylinders, cylinder heads, pistons, and patented expansion type piston rings.

Mines Safety Appliances Co.

Pittsburgh, Pa.

48 and 49 Oklahoma Building

In attendance

H. W. RICHARDS — J. L. PHILLIPS
J. B. DAVIES — G. J. GRUBER
G. L. SETH

A complete line of safety equipment including

Explosimeter

M.S.A. hose masks, tank gauger's masks, gas detecting and recording instruments, Skullgard protective hats, safety clothing, and first aid materials will be displayed.

The M.S.A. explosimeter, a compact, simple, accurate instrument for detecting and recording the presence of combustible gases, will be a feature of the exhibit. Other new M.S.A. products include the M.S.A.-Lamb Air-Mover, a portable, practical, emergency ventilating device; the M.S.A. anatomical shirt, a new idea in first aid training; M.S.A. salt tablet dispensers, ideal for inside or outside use; and M.S.A. all-weather first aid kits, providing individual treatments in handy compact form, sealed against dust and moisture.

Mission Manufacturing Co.

Houston, Tex.

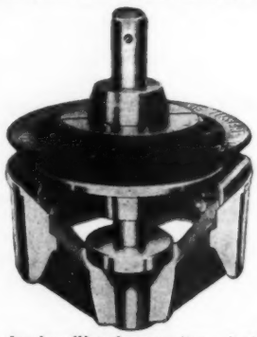
91, 92, 93, 118, 119, 120 Texas Building

In attendance

W. B. SHARP — W. T. CAMPBELL
J. D. BEST — R. M. GARRISON
E. H. TRAMMELL — F. S. PRICE
O. K. RYAN — J. A. BUTLER
COBB TURNER

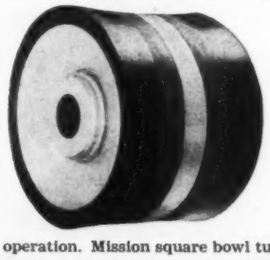
Exhibiting new Mission rotary slips, Model 36, having the time-proven principle of rolling dogs, which

makes for faster handling of pipe as the dogs roll away from the pipe as it is pulled. New Mission one pipe hinge-type slips that possess the same general advantages that distinguished the regular Mission slips. Mission



casing slips for handling larger sizes of pipe than the regular-type Mission slips.

Mission spool-type tubing spiders, embodying the rolling dog principle, and other features of Mission slips. It is a compact, self-contained unit that is always ready



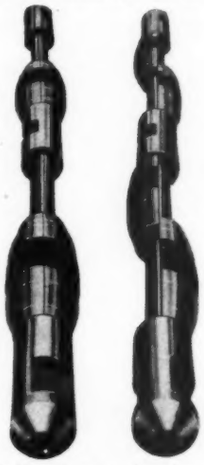
for instant operation. Mission square bowl tubing spider for handling the longest strings of tubing; also constructed on the Mission rolling dog principle.

Mission Silver Top slush pump valves. Removable bushing takes the wear, thus making possible the use of the seat and valve body over and over again.

Mission valve seat pullers designed on the well-known wedge principle.

Mission slush pump pistons. Upkeep costs greatly reduced because of easily replaceable rubbers on a long lasting piston body. Mission piston rods having super-strength core, testing 12,000 per square inch. Have a file hard case that makes for long wear; carries an unconditional guarantee of full coverage against damage to pump should rod break.

Mission valveless swabs, tandem model: Entirely different in design from conventional type swab. On down stroke half the rubber remains in fixed position



and the other half is free to rise above and clear of the stationary half, allowing unrectricted fluid flow. This principle also prevents swab from blowing from the hole when pulling load as the gas pressure will open split rubbers, permitting the gas to by-pass, resuming its load without loss after the gas has passed. No loose line over derrick floor to endanger crew.

Lee C. Moore & Co., Inc.

Pittsburgh, Pa.

65-66 Oklahoma Building, and Block 8

In attendance

C. R. KRAUSE — E. S. ANDERSON
O. H. DITTMER — H. J. WOOLSLAYER
C. L. HENRY — W. H. PAYNE
G. A. HOLLOWAY — J. C. DONALDSON
R. G. GORDON — E. A. CAMPBELL
CECIL JENKINS

The inside display will consist of a modernistic booth with seats. In the outside space we will have one of our Model 9900 spudders and portable drawworks, suitable for all types of cable tool drilling to a depth of 6,000 feet and rotary drilling to a depth of 3,600 feet; a 3-horsepower 9731 chain driven pumping unit, suitable for pumping wells of 2,000 feet or under; a Special 9731 chain driven unit for a four-well hookup, suitable for pumping four shallow wells, and a 9741 chain driven 10-horsepower pumping unit—all complete with gasoline engines—will be operated during the show.

A 136-foot, 30-foot base, Kay derrick of 800,000 pounds capacity, complete with crown safety and fourble platforms, is being exhibited in conjunction with the National Supply Co.

All of the foregoing are new developments of the company since the last oil show.

Moorlane Company, Inc.

Tulsa, Okla.

153 Oklahoma Building

Vogt drop forge steel valves, fittings, and flanges

153 Oklahoma Building

Scovill non-ferrous condenser tubes

154 Oklahoma Building

Moorlane meter run, orifice meter plates, Fuller compressor, Moyno pump

155 Oklahoma Building

American Car & Foundry lubricated plug valves

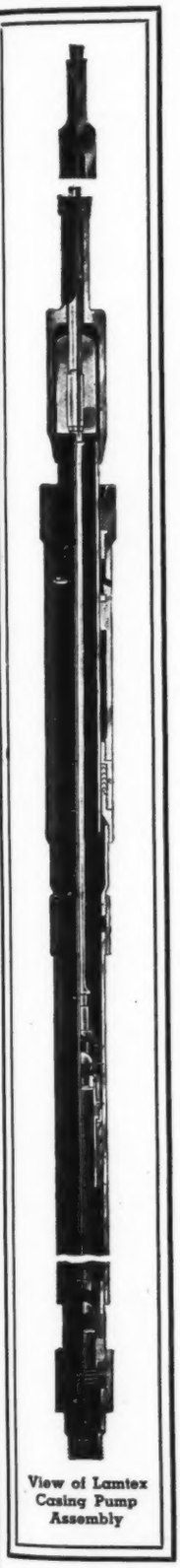
156 Oklahoma Building

Taylor welding fittings, flanges, nozzles, welding necks, and spiral welded pipe

157 and 158 Oklahoma Building

Reading-Pratt & Cady cast steel valves and fittings. Iron and bronze valves, and Lubrotite valves.

BOVAIRD MARCHES ON!



View of Lamtex Casing Pump Assembly

Now

EXCLUSIVE DISTRIBUTORS *for LAMTEX CASING PUMPS*

(In Oklahoma and Kansas)

Lamtex Casing Pumps have been thoroughly tested and proven in hundreds of installations. It is possible to lift a very large volume in wells where the reservoir pressure maintains high fluid levels; also where the fluid levels are low and the porosity of formation permits a sufficient flow. Lifting costs have been materially reduced by the use of Lamtex and Howe Casing Pumps.

The Lamtex Casing Pump requires no tubing (pumps directly to surface from casing) thereby reducing your pumping equipment costs from one-half to two-thirds. Requires only a rod job to make all changes and replacements.

Installations will be supervised by an experienced production man until the producer's field men become familiar with the equipment.

And With —

A NEW STORE AT KEMP CITY (K.M.A.)

67 Years in the Supply Business
35 Years in the Mid-Continent

STORE POINTS

* Ada (Pump Shop at Burris City)
* Chase
* McPherson
* Russell
* Hutchinson
* Oklahoma City
* Sapulpa

Borger
Pampa
Kemp City (K.M.A.)

MANUFACTURING PLANT: Independence, Kansas

* LAMTEX PUMPS, PARTS AND SERVICE AVAILABLE

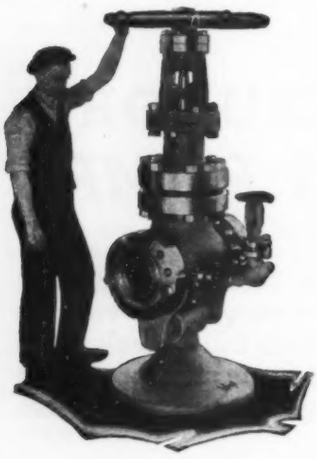
SUPPLY BOVAIRD COMPANY

"BUY FROM BOVAIRD"

See the BOVAIRD Exhibit in our own Building on Drake Drive

General Offices: Thompson Building, Tulsa, Oklahoma

The Henry Vogt Machine Co.
Louisville, Ky.
151 and 152 Oklahoma Building
In attendance
W. A. JACKMAN W. F. CANNON, JR.
WOOD SUMNER J. L. MASSIE



Drop forged steel gate valve

Exhibit will feature the world's largest drop-forged steel valve, a 6-inch, 1,500-pound integral flanged gate valve with by-pass. Also, a new series of meter type globe valves in one-quarter, three-eighths and one-half inch sizes will be shown as well as 150-, 300-, 400-, and 600-pound American standard drop forged steel welding necks.

Valves rust-proofed by the Parkerizing process and with identification discs on the handwheels will be exhibited along with a general line of drop forged steel valves, fittings and flanges.

Scovill Manufacturing Co.
Waterbury, Conn.
Booth 153
In attendance
J. L. KIMBERLEY W. H. BITNER

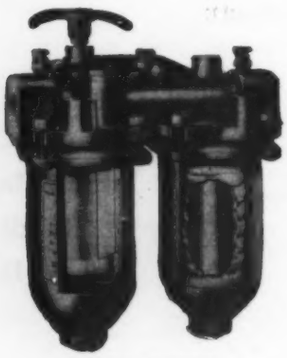
Display will be part of a cooperative exhibit designed and erected by the distributor, the Moorlane Co. of Tulsa.

Products to be exhibited will consist of condenser tubes in 10 alloys, and a display of recommended condenser tube installations.

Morrison Brothers
Dubuque, Iowa
6 Refiners and Marketers Building

Motor Improvements, Inc.
Newark, N. J.
17 Oklahoma Building
In attendance
FRANK P. HERMAN T. R. COLLIOUD
H. B. GRAHAM A. W. SCHULLER

The manufacturers of Purolator, the oil filter, are exhibiting a complete line of filters engineered for



D-type Purolator

installation on all types of diesel and gasoline engines for the filtering of the fuel and lubricating oil.

The increased use of Diesels has developed new problems in filtration that have been solved by new applications of Purolators. The filtration of lubricating oil in Diesel crankcases imposes tasks on filters far in excess of the demands in filtering lubricating oil in gasoline engines. Likewise the trend toward the use of small pumping units operating on natural gas has extended the need for lubricating oil filters.

Many types of lubricating oil Purolators to meet various conditions of service will be displayed.

Experiences during the last year have indicated clearly the need for absolute filtration of Diesel fuel. Filtering the fuel to a degree that will prevent proper

N-type filter

feed through injection orifices has not been enough. The degree of filtration must be fine enough to protect all the parts of exceedingly expensive injection systems. This means that not only must the filtering system provide fuel filtered absolutely free of any solid particle of

G-type Purolator

any size no matter how microscopically small, but also must shut off all flow of fuel when the life of the element has been reached.

In most applications at least two of these Purolators will be used between the transfer pumps and the injection system. The first will be a replaceable element type, but the final filter will be a sealed cartridge type. Most of the work of filtration will be taken care of by the first unit, leaving to the final filter the task of removing only such dust as may get into the line when the case of the first filter is opened for renewing the filter elements.

These "absolute" types of Purolators will be on display. The exhibit will include also small metal filters, some only 1⅝ inch in length used in injection jets to protect orifices against any small particle of scale or metal that may get into the fuel stream either in the injector or from other sources on engines not equipped with "absolute" type Purolators.

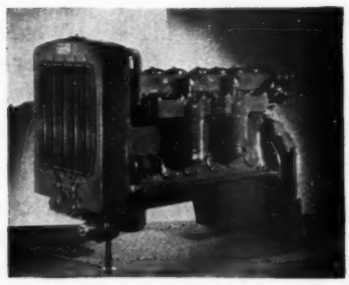
The D-type Purolators using the fabric and metal series combination, is recommended for the filtering of the fuel oil before it passes into the injector jets. These jets contain a small filter to prevent any dirt from getting into the nozzles. Several sizes of these jets are on exhibition.

The G-type Purolators contain one or more knife cleaning metal elements in parallel for the filtering of lubricating oil. All lubricating oil full flow filters contain relief valves. The purpose of these valves is to bypass the oil in case the element or elements become plugged with dirt or for some other reason cease to function. The type will remove the particles of contamination but will not go down fine enough to give clear oil filtration.

The N-type filter which is the Purolator clear oil type, will remove dirt, grit and metallic particles even down to colloidal carbon, thereby assuring you of clear oil filtration. This is a lubricating oil filter recommended for all types of engines but to be used only as a bypass filter. The unit contains a replaceable element to be renewed when the oil stream shows traces of dirt as this indicates the element has absorbed its quota of dirt.

Murphy Diesel Co.
Milwaukee, Wis.
210 and 241 Oklahoma Building
In attendance
L. E. DOBBINS GEORGE HOUGH

The company will exhibit a six-cylinder engine—5¾- by 6½-inch, cubic inch displacement of 1013 and operating at 1,200 r.p.m. This engine is extremely simple



in design and is controlled by a single hand wheel at the clutch end of the engine. This wheel acts as a control as well as operating a simple, built-in gasoline starting mechanism. There are no extra starting engines—no outside fuel lines or lubrication pipe lines. Each cylinder is provided with complete independent injection units mounted at the center of the cylinder head and driven directly by overhead camshafts. The fuel injector and pump are combined into one unit. A complete fuel system for each cylinder—interchangeable—no adjustments—and they can be removed in a minute's time. Fuel is filtered and supplied at low pressure and metering is accomplished by the injector. There is no dribbling and injection is regular. Pistons are cast iron, crankshaft bearing surfaces are especially hardened, and copper-lead precision type bearings are used. An automatic safety device stops the engine if lubricating oil pressure drops below certain fixed pressures.

Muskogee Iron Works
Muskogee, Okla.
Block 7
In attendance
S. M. McMANUS G. F. McMANUS
J. F. PURDUM A. W. BUCKNER
E. A. HINTON J. A. BARBRE
A. A. HADDOX H. G. TRIMBLE

Exhibiting pumping units, steel derricks, crown blocks, tractor-mounted hoist for well servicing, double-drum spudding hoist, pipe laying boom, pipe handling

M.I.W. pumping unit

equipment, and many other items of M.I.W. oil field equipment.

The feature of the display will be the exhibit of several new pumping units, representing a new complete line of double-reduction twin crank units recently perfected by the exhibitor. These units are manufactured in six sizes of structurals and eight sizes of gear

boxes. The various sizes of gear boxes can be used interchangeably with each size of structural; thus providing an ideal combination for prevailing well conditions. Structurals have polished-rod load capacities from 10,000 pounds to 27,000 pounds and the double-reduction herringbone gear units have capacities from 10 to 50 horsepower. Parts are built with welding and drilling jigs. All M.I.W. double-reduction twin crank pumping units are assembled and run in before being shipped from the factory.

Will also exhibit a galvanized steel derrick. Included with each derrick are base plates, foundation bolts, ladders, gin pole, headers and erection bolts.

National Carbide Corporation
New York
30 Oklahoma Building

National Cylinder Gas Company
Memphis, Tenn.
Adjoining Texas Building, in front of exhibitors' parking lot
In attendance
E. N. STEVENS — CLOVIS GEE
W. C. SHERWOOD — F. C. HEPPEL

As manufacturers of welding equipment and compressed gases, will have its apparatus on display, including one of the new National shape cutting machines which attracted so much interest in the steel show at Atlantic City. This machine will be in operation every day. General Electric Co., for which this company is distributor for its welding equipment in the South, is sending a complete welding equipment display. All machines will be in operation and will be demonstrated by General Electric factory expert. The new General Electric welding electrodes will also be demonstrated.

National Lead Company
St. Louis, Mo.
46 Scientific and Technical Building

National Petroleum News
Cleveland, Ohio
56 and 57 Refiners and Marketers Building

National Pump Corporation
Cincinnati, Ohio
5 Kansas Building

National Radiator Corp.
Johnstown, Pa.
166 and 167 Oklahoma Building
In attendance
B. T. du PONT — EDWARD SOPH

The corporation will exhibit for the first time a new National Oil-Rator, called the Mud-Leg type, for breaking crude oil emulsions and for reducing viscosity of pipe line oil.

The new Oil-Rator is made of a heat and corrosion resisting cast iron alloy and is subjected to a heat treatment to insure uniformity of these properties. Ease of assembly and a wide range of capacities afforded by sectional construction are retained and the newly designed gas burners and flue passages provide operating economy combined with extremely low maintenance cost.

The new Oil-Rator offers improved cleaning facilities and specially designed mud-legs on the sections prevent accumulations, at the point of heat application, of sand, mud and other solids present in many crudes. Thermostatic control and automatic operation offer the operating personnel further freedom from concern in the maintenance of continuous low cost heating or treating.

Also on exhibit will be National condensing and cooling sections designed to provide efficiency, accessibility and compactness, together with the low cost durability of cast iron.

Ribs placed on the inside of the sections increase the internal surface so the heat absorbing power of the interior surface and the heat dissipating ability of the exterior are equalized. Internal swirler fins create a turbulent condition which effectively scrubs the surfaces free of deadening films and prevents deposits from accumulating.

The exterior surface of National sections is smooth

BREAK DOWNS Ruin Prestige!

IT'S CHEAPER TO USE KROPP FORGINGS

Yes, it's far cheaper in the long run to use Kropp Forgings because equipment breakdowns in the field or refinery ruin prestige — stand in the way of future sales, and add red figure costs on the production sheets. A faulty part, even a small one, can damage the reputation of an otherwise fine and efficient piece of equipment.

In the places where tensional, torsional, and compression stresses occur, the parts that really take the abuse — that's where Kropp Forgings belong.

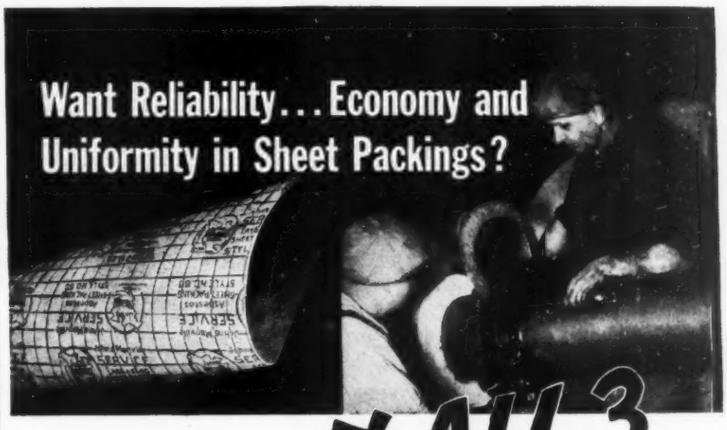
Kropp has grown with the petroleum industry. Leading manufacturers of oil field equipment depend on Kropp for die and hammer forgings. For over 100 years, Kropp has made "forgings to your specifications."

Write for new bulletin showing our complete forging, heat treating, and machine shop facilities. Let us help you in cutting costs on forged machine and equipment parts.

Have you a copy of Kropp Stock List 125? Lists all types and sizes of forged steel companion and boiler flanges. We carry over 500,000 flanges in stock for immediate shipment.

Representatives in Dallas, Houston, Tulsa, Pittsburgh. Flange distributors in leading fields.

KROPP FORGE COMPANY
5309 WEST ROOSEVELT ROAD — CHICAGO



You get ALL 3 in J-M SERVICE SHEET (Style No. 60)

SHEET PACKING worthy of its name must offer dependability and economy in use on a wide variety of service conditions. And there must be no variation in quality from one shipment to the next.

To this rigid standard J-M Service Sheet (Style No. 60) is designed and manufactured. Over sixty years of experience go into its making . . . into its carefully guarded uniformity.

Made of selected long-fiber asbestos and special heat-resisting compounds, J-M Service Sheet has a record for outstanding performance on flanges and other parallel surfaces against superheated or saturated steam . . . against gas, oil, air, water, ammonia, certain acids and alkalies.

• • •

Have you a copy of our latest packings catalog on hand for quick reference? It describes the complete line of J-M Materials—designed to meet every specific packing need in your plant. Simply write Johns-Manville, 22 East 40th Street, New York City.

Johns-Manville PACKINGS AND GASKETS

so no foundation is presented for the building up of insulating deposits from dirty or bracish cooling waters. Overall rates of heat transfer from 20 to 100 per cent greater than those obtained with smooth interior equipment are thus readily possible and with only about one-half the space required by pipe coil equipment.

The National Supply Co.
Toledo, Ohio

5 Drake Drive

In attendance

J. M. WILSON	J. A. GEISMAR
L. V. BOGGS	D. S. FAULKNER
C. C. CARTWRIGHT	A. W. McKINNEY
J. R. MAHAN	D. G. MANN
R. W. GORDON	M. F. CRIBBS
W. F. SMITH	C. A. McCOLLUM

†Ideal Throw-Off, Type OB-36.
†Ideal Power Driven Slush Pump, Type C-250, 7¼ x 15.
*Ideal-Ajax Piston Valve Type Fully Enclosed Horizontal Steam Engine 9 x 8.
†Ideal Steam Slush Pump, 15½ x 8½ x 20.
*Ideal Duplex Power Pump, Type D-50.
*Ideal HS-20½ Rotary Machine.
*Ideal Swivels, Type M.
*Ideal-Ajax, Fully, Enclosed, Vertical Twin Cylinder Steam Engine 9 x 8.
*Ideal Tie Down Attachment.
†Ideal Rotary Drill Collar.
*Ideal Type KSME 266 Mechanical Electric Rotary Rig Drive.
*Ideal Reduction Gear, Type B-DC.
†Ideal C-350, 7¾- x 18-inch, Power Slush Pump.
*Ideal Drawworks, No. 23-10½ FE.
*Ideal 6-inch x 40-foot Octagon Rotary Drill Stem.
†Ideal Rotary Hook, Type B-30.
*Ideal 5-inch Sheave, 88-inch Traveling Block, Type 548T.
*Ideal Crown Block, Type T-648.
*Ideal Rotary Hook, Type D-12.
†Ideal Automatic Grip Spider, Hinged, Type S.
*Ideal 60-TS-244 Mechanical Rotary Rig Drive.
*Ideal Reverse Gear, Type C-600.
*Ideal Seismograph Unit, Type 500.
†Ideal Rotary Chain.
*Ideal Type M Swivel Assembly.
*Ideal LFK Pillow Block Assembly.
*Ideal 4½-inch A.P.I. Internal Flush Tool Joint.
*National Unit Pumper, Type TU70G-JD7T.
†National Pumping Power, Type G-50.
†National Back Crank Pendulum, Type H.
*National Band Wheel Power No. 14-D.
*National Unit Pumper, Type TUS-403-H40T.
*National Unit Pumper, Type TU-70-G40T.
*National Unit Pumper, Type TU803-H11T.
†National Reduction Gear Unit, Type H80.
*National Beam and Post Assembly, Type SF603.
*National Pumping Jack, Type D180.
*National Pump Power, Type G-30.
†National Sucker Rods.
*National Tubing Heads.
†Superior Vertical Two Cycle Twin Cylinder, Type "GB," Convertible Gas Engine.
†Superior 50 hp. Type "C" Horizontal Two Cycle Convertible Gas Engine.
†Superior Two Cycle 3 Cylinder, Type "GB," Convertible Gas Engine.
†Superior IA-6 Stationary Diesel Engine.
†Superior 2 Cycle, 2 Cylinder, Type "FB," Gas Engine.
*Superior Unitized Cable Tool Drilling Reverse Clutch Assembly No. 60.
*Superior, 2 Cycle, 6 Cylinder, 8¾ x 9½-inch, Type "M," Full Diesel Engine.
†Superior Air Starting and Auxiliary Lighting Outfit.
*Superior, 2 Cycle, 4 Cylinder, 8¾ x 9½-inch, Full Diesel Engines.
*Broderick Saturated Steam Boiler, No. 260, 135 hp., 325 pounds.
†Dayton Couplings.

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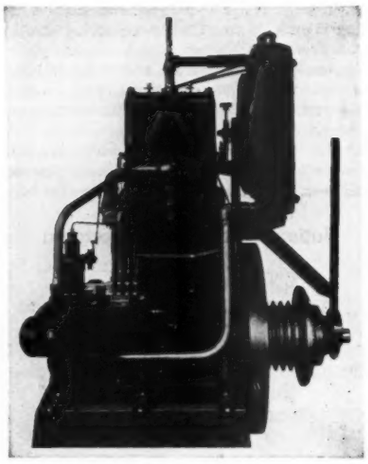
*Equipment shown at International Exposition for the first time.
†Equipment improved since last showing.

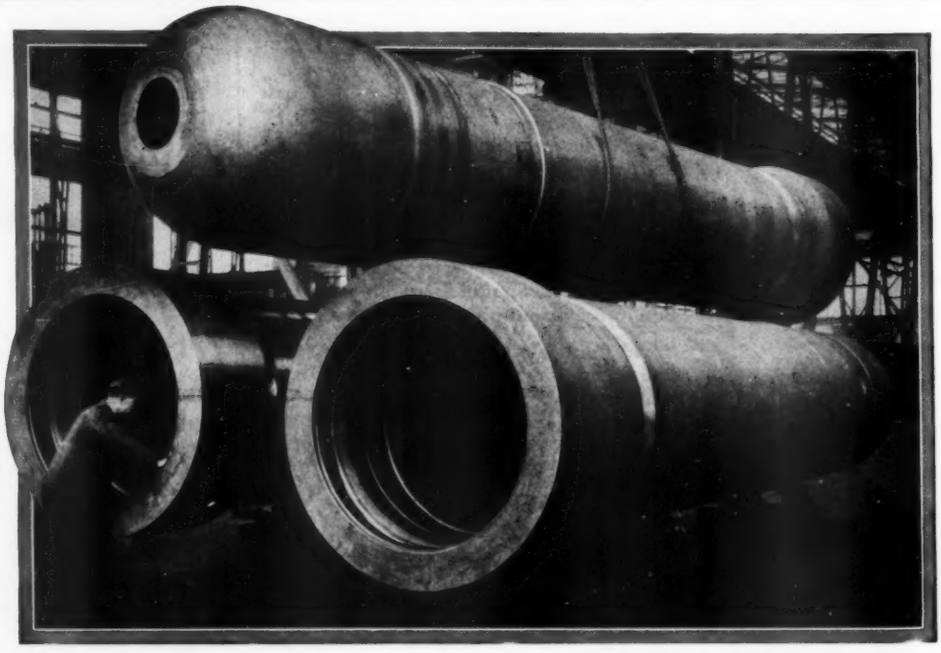
Superior Vertical 2-Cycle 2-Cylinder, Type "FB" Gas Engine—The Superior "FB" embodies every desirable feature of older models with added improvements made possible only by field experience and a determination



to assist in reducing the overall investment in well pumping equipment.

Superior 2-Cycle 6-Cylinder, 8¾ x 9½-inch, Type "M"

Diesel Engine—The Type "M" Vertical 2-Cycle Superior Convertible Diesel Engine is designed especially to solve the power problem for mechanically operated rigs. This



Seamless Hollow-Forged
Reaction Chambers

and other Pressure Vessels for Cracking and Hydrogenation of Oils, Coal, Tars etc. working at the highest pressures and temperatures, made in Siemens-Martin Carbon Steel or Alloy Steels of an especially high resistance to chemical attacks.

For Piping and Fittings for Cracking and Hydrogenation Plants we recommend our special Alloy Steels preventing Surface Scaling at 800° C and particularly resisting to Hydrogen Attacks and the effects of High Temperatures.

KRUPP

1790a

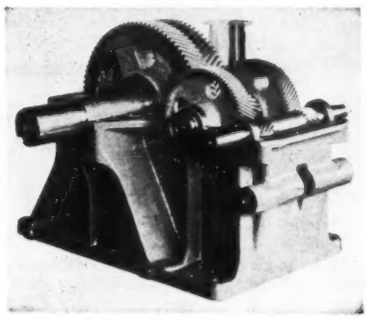
Fried. Krupp Aktiengesellschaft, Essen (Germany)

engine is of medium speed and weight, made to operate on Diesel oil, natural gas, or butane. It has a simple and accessible design and can be operated efficiently by any crew familiar with steam engines even though lacking experience with Diesel Engines.

Ideal Reverse Gear, Type C-600—The Ideal Type C-600 Reverse Gear is a new National product and is one of the finest pieces of equipment of its type ever

offered to the trade. It includes such features as the latest designed heavy duty enclosed type friction clutch, improved oil enclosure for reversing gears, highest class of roller bearings throughout, replaceable drawworks drive sprockets with machined and hardened teeth and refinement of control operating mechanism.

National Reduction Gear Unit, Type H-80—This Reduction Gear Unit is built to operate for years without



material loss of efficiency. A fundamentally sound design, the use of selected materials and precision manufacturing standards, all contribute to this performance.

Ideal Seismograph Unit, Type 500—The increased use of seismograph methods for locating oil deposits has created a demand for a light mobile unit for fast rotary drilling. The National Supply Co., with years of experience in manufacturing both light and heavy duty portable drilling outfits, has developed the Type 500-B Drilling Unit for the present day needs. Designed in conformance with modern drilling practice and fully portable, this unit incorporates complete rotary equipment for fast drilling to a depth of 500 feet using 2⅜-inch drill pipe.

Superior Type "C" Horizontal Gas Engine, Two-Cycle Convertible 50 hp.—The Superior Type "C" Horizontal 2-Cycle Gas Engine was developed to meet the new and varying conditions of modern deep well pumping. It incorporates features which provide longer life, improved efficiency, and unequalled dependability.

Superior 1A-6 Stationary Diesel Engines—This Superior Diesel Engine is built to give many years of service under the most severe operating conditions. Every part is designed with reserve strength. Fine materials, skilled workmanship, close inspection and factory tests assure the owner that each engine is built to the highest standard of quality. Economy in operation means low fuel and oil consumption and low maintenance cost.

Ideal Reduction Gear, Type B-DC—The Ideal Type "B-DC" Drilling Reduction Gear is designed for deep well rotary drilling. It is a typical Ideal fully enclosed heavy duty design, with all parts readily accessible.

National Geared Pumping Power, Type G-50—The G-50 Pumping Power has behind it years of experience in building powers that give long trouble-free service. The success of the G-100 National Geared Power created a demand for a similar unit of lesser capacity with the same low maintenance cost and high operating efficiency.

National Band Wheel Power, No. 14D—The National 14-D Power is a new development in band wheel pumping powers and includes features not heretofore available on a power of this type. Full advantage has been taken of experience with both band wheel and geared powers in producing a design capable of lifting oil at a low ultimate cost per barrel.

National Back Crank Pendulum, Type H—The Type H National Back Crank Pendulum is made to pump additional wells from backside cranks. This pendulum is recommended for use with National Reduction Gears, but it may be used with other reduction gears as well as rig fronts or standard rigs.

National Pump Jack, Type D-180—The Type D Jacks are newly designed for the long stroke pumping of deep wells, which were formerly handled with standard rigs. This new design is based on several years of experience with this type of welded underpull jack and is covered by patents issued and pending.

National Tubing Heads are made in a variety of styles and sizes, for both low and high pressures. Stripper Heads and attachments are also available. The complete line meets practically any service requirement.

Superior Vertical Two-Cycle Twin Cylinder, Type GB Gas Engine, and Superior Vertical Two-Cycle Three Cylinder, Type GB Gas Engine—The Type "GB" Engine, made in the 2, 3, and 4-cylinder sizes, has the unusual ability to perform satisfactorily in continuous service under full load. This is only one example of the successful efforts of Superior engineers to provide for maximum reliability. The wide speed range and smooth power output, due to large number of impulses and the resulting nearly flat torque curve, make this an ideal engine for geared pumping units, powers, and many other applications.

Ideal Power Driven Slush Pump, Type C-350—7¾ x 18—This pump is designed to meet the requirements of faster and deeper drilling and higher pressures. This pump is adaptable to engine or motor drives from either side, direct connected or with V-belts.

Ideal 6-inch by 40-foot Octagon Rotary Drill Stem—The Ideal Octagon Rotary Drill Stem is made from materials selected for strength and resistance to wear and shock. True center circulation holes, uniform wall sec-

$632,098,000 MADE AVAILABLE FOR

EXPENDITURE OF ONE BILLION

U.S. Banks Will Get 50 Million Weekly For Recovery Loans

$14,000,000 LOAN IS APPROVED FOR

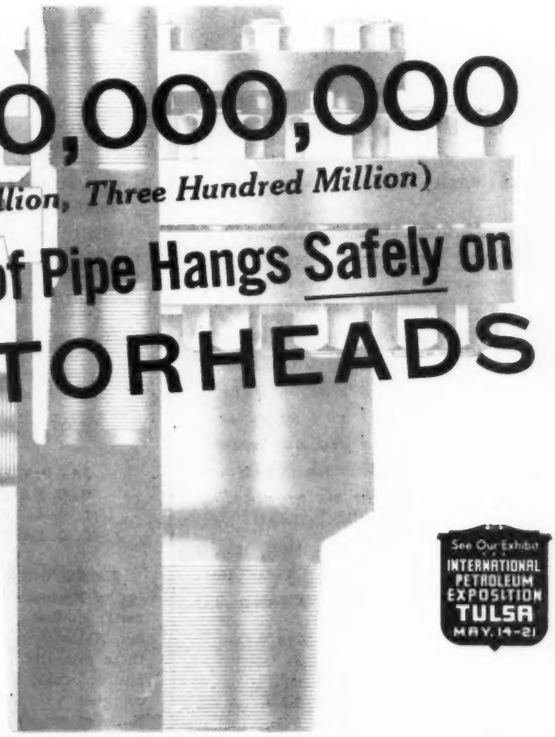
IN THIS DAY OF BIG FIGURE TALK

1,300,000,000

(One Billion, Three Hundred Million)

Pounds of Pipe Hangs Safely on

RECTORHEADS



See Our Exhibit INTERNATIONAL PETROLEUM EXPOSITION TULSA MAY. 14-21

Hammered Forged Steel RECTORHEADS are recognized everywhere as the foundation of properly cased wells . . . . . as the one safe means of repacking under high pressure . . . . . as the user's means of avoiding serious well trouble . . . . . as the Successor to the Bradenhead!

RECTOR WELL EQUIPMENT COMPANY, INC.

FORT WORTH.....TEXAS

WICHITA FALLS TULSA SHREVEPORT HOUSTON MIDLAND CORPUS CHRISTI

Profits Stop When the Beam is Up!

Decrease Your Down Time by Using Valve Cups that Can "Take It"

Made of tough materials for tough wells, O'Bannon Cups line up perfectly on a valve body because the hole is exactly in the center.

Also, every O'Bannon Cup is just like its brother—absolutely uniform as to size and density.

Charles Jones, superintendent for Grimes and Gillespie, near Tulsa, Says:

"I used a number of kinds of valve cups in No. 6, Sec. 31-21-12, and the longest run was 36 days. On April 6, 1937, I ran a set of O'Bannon cups and did not need to pull the well again until October 15—a run of over six months."

Use O'Bannon Cups (in the bright red containers) and keep your polished rods moving longer between rod jobs.

See Our Exhibit
INTERNATIONAL PETROLEUM EXPOSITION
TULSA
MAY 14-21

Sold By Supply Stores

Manufactured in Tulsa by

WALTER O'BANNON CO.

O'BANNON VALVE CUPS

tions and positive accuracy tests given complete assurance under the most exacting service.

National Unit Pumper, Type TU70G—JD7T—A complete self-contained twin crank unit for shallow field single well pumping. It is made to lift oil with a minimum expenditure of power and to operate for years with little attention and maintenance. With its high quality of design and workmanship, it meets the requirements of low first cost in a shallow well pumper.

Ideal Power Driven Slush Pump—Type C-250—7¼ x 15—The Ideal Type C-250 Power Driven Slush Pump meets today's requirements of faster drilling and higher pressures. The horsepower end and the pressure rating of the fluid end make it capable of the same performance as the corresponding Ideal Steam Slush Pumps.

Ideal Steam Slush Pump, 15½ x 8½ x 20—This pump is constructed to meet the severe requirements of modern drilling methods. Rugged construction throughout permits the high fluid pressures encountered in deep drilling.

Ideal Duplex Power Pump, Type D-50—The Ideal Duplex Power Pump is suitable for a wide variety of service. It may be used for pumping water, oil, or other liquids, or as a slush pump on portable rotary rigs. Among the more important oil field applications are oil gathering and water supply service.

Ideal HS-20½ Rotary Machine—The HS-20½ Rotary is an entirely new heavy duty high-speed machine developed to meet present-day drilling requirements. It embodies many improvements not found hitherto in the ordinary rotary. The gear ratio is such that unusual flexibility of operation is available by simply changing from the regular 17-tooth sprocket to other sizes, thus obtaining speeds suitable for all drilling conditions.

Ideal Throw-off, Type OB-36—Ideal Type OB-36 Throw-offs provide a method of connecting and disconnecting individual wells operated by a pumping power having a stroke of 36 inches or less. They are recommended for use with any type of central pumping power and can be safely used on pull rod loads up to 25,000 pounds.

Ideal Swivel, Type M—Proven in oil fields throughout the world and by the unqualified acceptance of operators, this Type M Swivel offers an efficient design developed from years of experience in swivel manufacture. Distinctive National features contribute to the extraordinary performance of this swivel.

Ideal Forged Steel Rotary Drill Collars—The superior service given by Ideal Alloy Steel Heat Treated Rotary Drill Collars has caused them to be specified almost to the exclusion of other grades. Operators have found that they offer not only higher strength and endurance but greater safety as well.

National Tank Co.
Tulsa, Okla.

96-97, 98-113, 114-115 Texas Building

In attendance

JAY P. WALKER — C. G. WELLS
G. O. MARCHANT — J. E. RICHARD
L. S. ALLEN — C. O. GLASGOW
C. D. LAIDLEY — S. S. PARKER
FLOYD L. SENTER

Exhibit will feature new types of equipment consisting of National oil and gas separators, National automatic emulsion treaters, National unit emulsion heaters, National bolted and welded tanks, etc. Many of these products will be displayed in scale model miniatures completely connected together to comprise a complete production handling system. A transparent National automatic emulsion treater will visibly depict the principles of emulsion treating as employed by the National treater.

National Tube Co.
Pittsburgh, Pa.

136 to 142 Oklahoma Building

In attendance

J. E. GOBLE — H. J. MORLANG
W. F. McCONNOR — J. B. GRAHAM
W. C. MOSER — F. R. BRAMAN
J. R. BOAX — F. A. MARSH
E. E. SMITH — W. L. SCHAEFFER
A. L. ZOLL

Exhibit will consist of a special display bringing out the advantages of the rounded form of thread as applied to casing and tubing, and a display of oil country products, including:

National A.P.I. casing and tubing.
External upset tubing with high tensile coupling.
Special alloy casing with high tensile coupling.
Drill pipe with various types of new and regular design tool joints.
Seamless line pipe—sizes ⅛- to 28-inch.
National Duroline pipe.
Plain carbon and various alloy steel tubes for refineries.

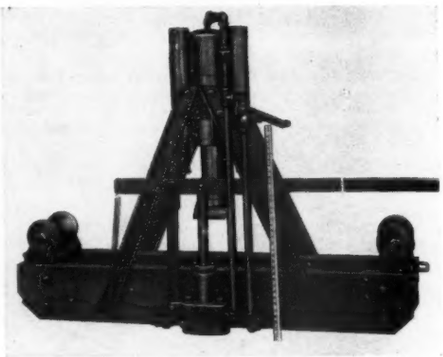
The New Deal Specialty Company
Okmulgee, Okla.

Block L

In attendance

BEN COLCHENSKY — G. T. (Ted) BYNUM

An outdoor exhibit of pipe cleaning machines and pipe straightening and bending machines will feature a new member of the duo-hydraulic straightening and bending machines, known as Big Shorty Model E. The compact sturdiness of this machine is especially designed and built for use on the derrick floor and other places where space is limited. This is a hand-operated model.



New Deal Model E Big Shorty duo-hydraulic pipe straightener

The Ben Franklin Special Model D power-driven duo-hydraulic straightener will represent the power-driven models. Features of this model are an all-steel frame 12 feet in length, 24-inch ram stroke, and 90,000 pounds and 121,000 pounds respective ram pressure when powered by a 10-horsepower motor.

Master De-Lux model pipe cleaning machine will be shown. 1938 improvements on the Hi-Speed model are: New type chrome-nickel pins, and a new remote clutch control. The Master De-Lux model has a capacity of 2-inch to 14-inch OD and will clean 2-inch ID when adapter for small pipe is used. These machines clean large quantities of pipe rapidly, efficiently and at low cost per foot of pipe.

The Rolley-Polley hand-operated pipe straightener for small pipe will be shown.

Hercules engines will also be shown.

Nordberg Manufacturing Co.
Milwaukee, Wis.

77 and 78 Kansas Building

In attendance

W. N. MILLER — DELBERT KAY

The exhibit will consist of a Symons mud screen in operation. This screen was developed on the West Coast and is being exhibited in the Mid-Continent field for the first time. It has a screening deck 3½ by 6 feet, and is driven by a 3-horsepower motor.

Symons mud screen

The screening action is decidedly different from other mud screens in that the amplitude of vibration of the deck varies from a minimum at the feed end to a maximum at the discharge end. When the feed comes on to the screen, the action is a gentle straight-line motion which permits the fluid mud to pass through the first few feet of cloth. This action is

gentle when the load is the heaviest. As the oversized particles move toward the discharge end, the vibration is increased thereby freeing the particles of any adhering mud and giving a comparatively dry discharge. The main shaft is carried on roller bearings and has flexible couplings between the power unit and drive pulley, eliminating any vibration being transmitted to the pulley. The amount of vibration can be quickly and easily changed by shifting weights to give greater deck amplitude.

Other features are long life of screen cloth made possible by the action of the screening deck, the method of cloth fastening and the rubber supports under the cloth. The screen sets level and is provided with heavy sled runner base to facilitate handling and installation.

Norma-Hoffmann Bearings Corp.
Stamford, Conn.

8 Texas Building

In attendance

H. J. RITTER — T. E. ROUNDS
D. E. CHRISTOPHER — C. H. WALLACE

Will exhibit a representative line of Precision type ball, roller and thrust bearings, both of the rigid and self-aligning types, suitable for either direct or adapter type shaft mounting, as would be normally used by manufacturers of oil field equipment. Will also exhibit a number of ball and roller bearing pillow blocks, as well as needle roller bearings suitable for oscillating applications on oil well pumping rigs.

W. C. Norris, Manufacturer, Inc.
Tulsa, Okla.

Space "X" on Skelly Drive, Norris Building

In attendance

W. C. NORRIS — D. S. BOWERS
E. D. FORQUER — J. H. EUSTICE
R. A. COLGIN — H. V. FLEMMING
O. R. KINNAMAN — WM. R. BARNEY
H. H. PARIS — A. W. BRANSCUM
N. B. HEYWOOD — EVERETT RAY
G. W. DAVIDSON — P. D. HINSON
C. O. JONES — C. H. BENEDUM
RAY SEXTON — E. B. WILSON
J. E. GILES

Will display swaged nipples and bull plugs with the new "Norrisized" corrosion-protective treatment.

"Nortex" polished rods, "Blue Ribbon" working barrels, stuffing boxes, casing heads, bradenheads, "Super-Strong" pull rods and the new "Nor-Alloy" all purpose sucker-rods and Grade "A" carbon steel sucker-rods.

The latest design of Norris heavy-duty quality pumping equipment consisting of underpull pump jacks, stroke posts, rod line swings and other surface equipment will be shown in operation.

Norton Company
Worcester, Mass.

183 Oklahoma Building

In attendance

F. L. ANDERSON — HARLAN T. PIERPONT, JR.
AUGUST F. HUGE — ROBERT M. ONAN

Grinding wheels of all sizes and shapes will be the feature of the exhibit. Special emphasis will be placed on tool wheels and other types used by the oil industry for maintenance work. In this connection the new "B-E" bond tool wheel will be of exceptional interest. It is a new development of the Norton laboratories that results in a cooler cutting, faster cutting wheel that is especially effective on high-speed tool steels. Other abrasive products on exhibit will be grain for polishing and abrasive bricks and sticks.

Of interest to workers in the laboratories of the oil industry will be the display of Norton refractory laboratory ware for ignition, incineration, filtration and extraction. Refractories for production work will be represented by bricks, tubes, muffles and cements. There will also be porous plates and tubes for aerating, filtering and diffusing gases, liquids and solids.

Products of the Behr-Manning division of Norton Co. will also be on display and will include sharpening stones of various kinds and abrasive papers and cloths.

Wm. W. Nugent & Co., Inc.
Chicago, Ill.

171 and 172 Oklahoma Building

In attendance

CORLISS D. NUGENT — JOHN VOCELKA
D. S. DEEM

Three larger sizes of pressure oil filters have been developed and added to the company's present list of five. They will be exhibited along with the smaller size pressure and gravity oil filters, also the Nugent oiling devices, pumps, valves, etc. The new filters are known as Figure 1116HA, Sizes 8R, 8S and 8L. They are filling a crying need for larger capacities in one unit rather than a multiple of smaller ones in parallel.

They will filter any liquid that is not injurious to the materials of construction, such as:

Lube oil	Calcium chloride
Fuel oil	Sodium silicate
Hair oil	Fish oil
Cocoanut oil	Sperm oil
Olive oil	Kerosene
Castor oil	Gasoline
Vegetable oil	Carbon tetrachloride
Almond oil	Lard oil
Linseed oil	Neatsfoot oil
Turpentine	Peanut oil
Syrup	Soybean oil
Cider	Poppyseed oil
Beer	Rapeseed oil
Beverages	Screw cutting oil
Hair lotions	Wintergreen oil
Glycerine	Water
Cutting compounds	

They are ideal for:

Diesel engines	Air compressors
Oil engines	Pumps
Gas engines	Printing presses
Rolling mills	Paper making machinery
Gear drives	Rotary kilm trunnion bearings
Large bearings	
Hydro turbines	Motor ships
Ore crushers	Motor Yachts
Ammonia compressors	

The operation is like the company's well-known Size No. 4L, except there are eight closely woven textile filter bag elements wound around a central spool instead of four. The liquid filters through the bags from the inside out; hence, when the bag is removed all the dirt comes with it, like in a vacuum cleaner. The bags may be thrown away with the dirt in them, or reversed and cleaned. Extra bags are carried in stock. An automatic by-pass and relief valve is built in the bag spool to relieve extreme pressure should the bags clog. This condition is indicated by differential pressure gauges.

The filtering surface of each size filter is 4,609, 9,472 and 15,496 square inches, respectively, and is 20 times more than most filters for the space occupied (patented). The overall height of each is 21, 31 and 43 inches, respectively. The overall diameter of each is 18½ inches. The flanged pipe thread inlets and outlets of each size filter are 1½, 2 and 2½ inches, respectively. Shipping weights are 480, 535 and 600 pounds, respectively.

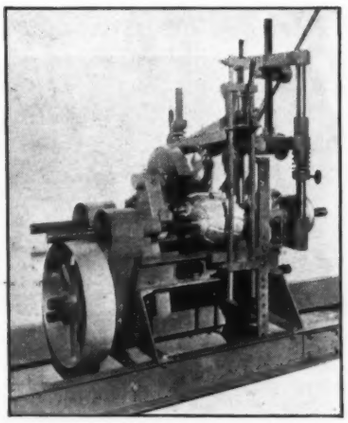
The construction, like the No. 4L, is welded steel to stand 100 pounds working pressure. The range of operating pressure is 1 to 100 pounds. The operating temperature range is from the lowest the liquid will flow to 200° F. Bolting down lugs or feet are welded to the filter shell. The exterior is enameled gray finish.

O. K. Machine & Mfg. Co.
Tulsa, Okla.

130 Oklahoma Building

In attendance

GRANVILLE STROBEL — KARL STEIGER
G. BENJAMIN DAVIS



On display are two models of the "O-K" pipe cleaning machine and the Model D hydraulic pipe straightener. The cleaner illustration shows "Standard Model B-B" complete with new improved brushing unit and the "O-K" pipe cut-off attachment. This latest model cleaner features a completely new and improved head, a 4-inch lower body that eliminates objectionable vibration. Capacity 2-inch to 12-inch pipe, with 22-foot frame. Opposite this cleaner is displayed the "O-K" pipe line cleaner, 30 feet in length. The pipe line model features the double brush attachment; also the pipe loading and unloading devise, constructed to withstand the toughest kind of field use.

The O-K hydraulic pipe straightener is in use in every important oil field in the United States. Featuring all-steel construction, specially designed pump with solid steel barrel, re-enforced steel cylinder with solid steel plunger, and a complete set of pipe rollers and shoes for all size pipe from 2-inch to 8-inch. Also made in two larger sizes.

Oakite Products, Inc.
New York

10 and 11 California Building

In attendance

J. A. CARTER — J. C. LEONARD
J. R. WHYTE — W. A. DOWEN
A. W. SCHULTE

Exhibiting a number of recent developments of interest to producing and refining executives. One item of major interest as summer approaches, is the safe, quick methods that have been developed for cleaning the water jackets of diesel engines. This has been accomplished through a material known as Oakite Compound No. 32 which the makers report, can be used with entire safety to the engine. Circulation of the solution is all that is required to rid the system of rust and scale deposits so that full heat transfer capacity is restored.

The Hot Flow-On method of stripping paint from oil storage tanks and other large equipment will also be illustrated. The use of a water solution eliminates all fire risk and the method employed permits large surfaces to be stripped at one time. Recovery of the solution and the automatic way in which the job is done makes costs extremely low.

Also to be featured are the recent improvements in materials for the removal of carbonized oil from oil coolers, preheaters and similar exchange equipment to restore normal heat transfer.

The Ohio Oil Co.
Tulsa, Okla.

33 and 34 Refiners and Marketers Building

In attendance

J. P. HUGHES — J. H. WILSON
J. O. WEBER — C. J. BLUE

Marathon and Linco products will be displayed with a background designed to represent a service station.

Walter O'Bannon Co.
Tulsa, Okla.

104 and 105 Texas Building

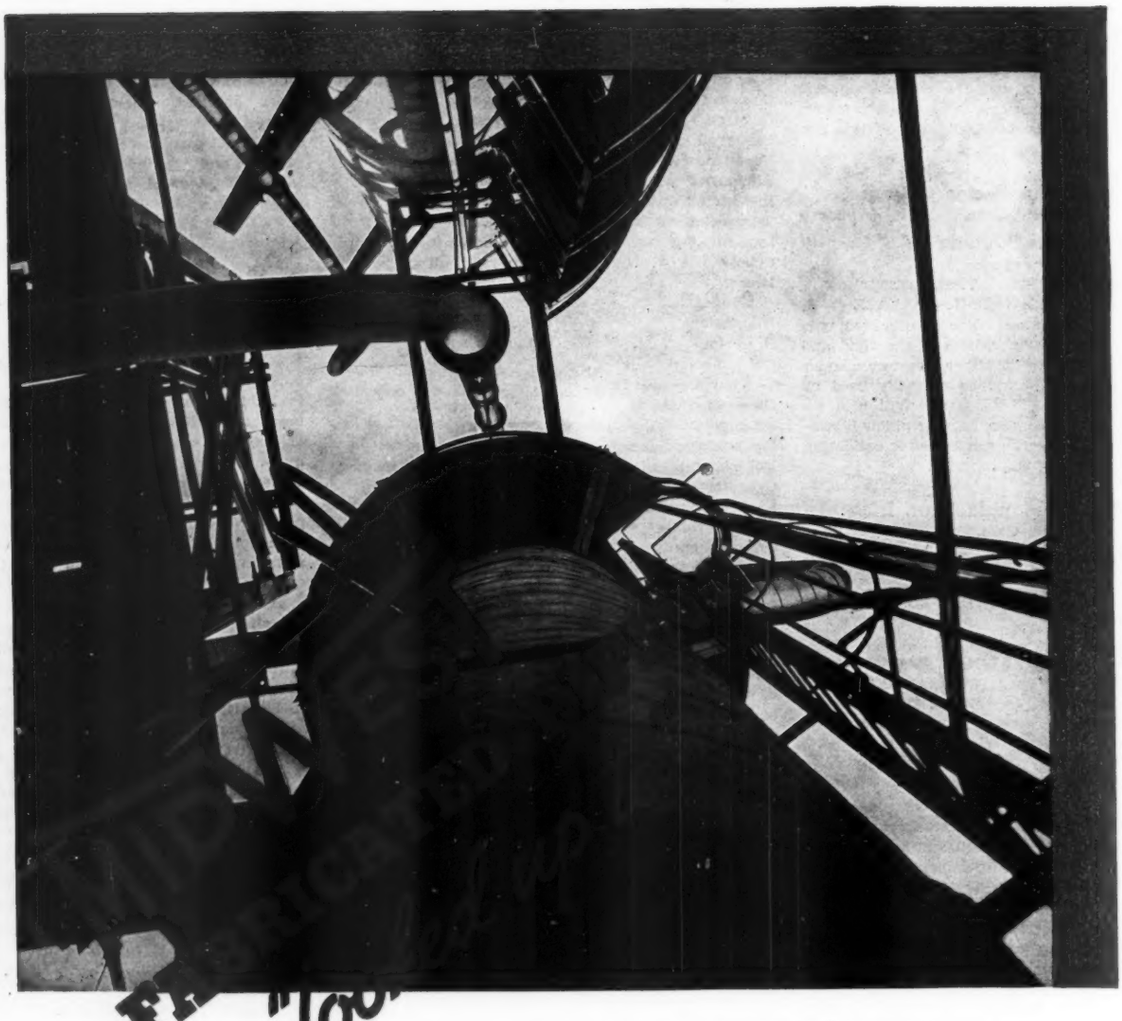
In attendance

WALTER O'BANNON — E. B. BEARD
BLAKE CALDWELL — H. P. GILLESPIE
W. J. HENNIGAN — R. L. HODSHIRE
E. W. JACOBIA — F. H. KRUG
WALTER O'BANNON, JR. — H. D. SMITH
C. M. PETERS — L. B. ROWSEY
A. O. THRASHER — OTTO WIESSNER

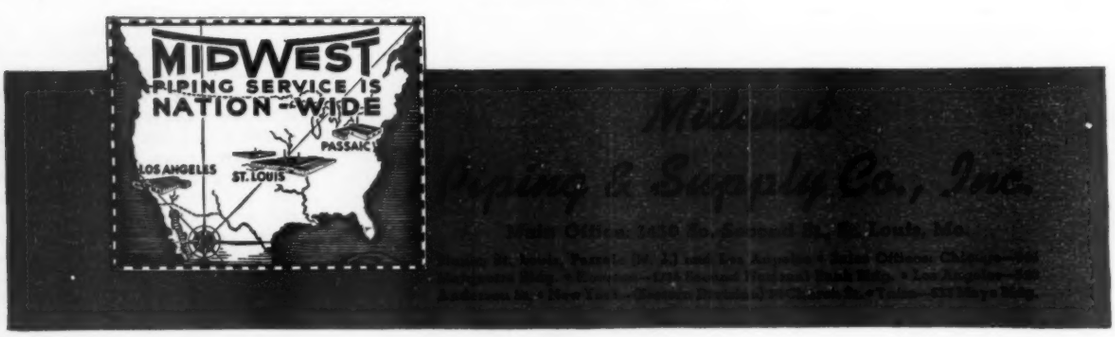
Having doubled the space it has occupied in previous years, the Walter O'Bannon Co. expects its 1938 exhibit to be of greater interest to the production man than ever before. Especially to be featured will be the new products developed by the company in the past two years, and special facilities for demonstration are being completed by the engineering department.

The advantages of the exclusive Cro-lay process of applying hard chromium to working barrels will be featured. This Cro-lay surface is so hard that no oil sand can even so much as scratch it, and in addition it is entirely resistant to the harmful effects of salt water corrosion. Demonstration and proof of these qualities will be given at the exhibit.

Also to be featured will be the new stationary barrel type Arrow and DeLuxe rod pumps. Released from the experimental stage only recently, these pumps have been quite successful in meeting the problem of pumping low fluid level wells. A compari-



As one refinery superintendent put it, "Our men have always looked up to Midwest Piping. They find that when we buy piping from Midwest, it goes into place easier and faster . . . the bends, joints and welded sub-assemblies always are workmanlike jobs."



son of the operation and functioning of stationary barrel type and traveling barrel type pumps will be illustrated by working models actually pumping oil.

New tools in the line of pulling equipment and sockets will also be on display, and the importance of safety stressed. The improved O'Bannon automatic tubing spider is expected to be of great interest to those who are not already familiar with it.

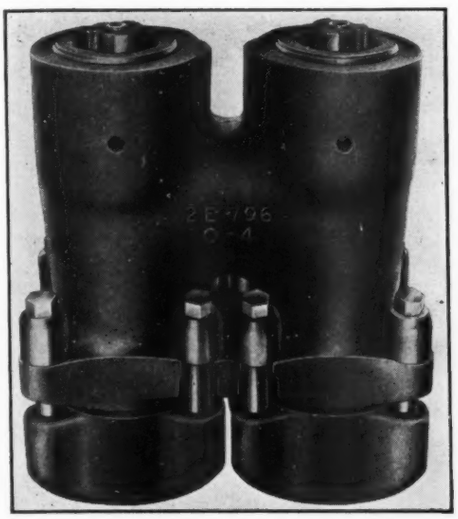
The Ohio Steel Foundry Company
Springfield, Ohio

76 and 77 Texas Building

In attendance

B. W. VINSON W. J. HAYES

Exhibit will cover various types of refinery return bends manufactured by the company, including the Type 1650, which is a recent development.



Type 1650

The Type 1650 shown is a special fitting developed for use with upset end tubes. It eliminates trouble previously experienced with old designs of return bends for upset end tube operation where a separate U bend made direct contact with upset end of the tube. In such earlier designs the joint between the U bend and the tube had to be broken every time units were cleaned. This resulted in quite a little delay when fittings were reassembled, due to necessary adjustments to get a leak-proof joint.

In Type 1650 the fitting of box type design is attached to the upset end tube by means of separate flanges with studs and nuts. This joint is disturbed only when it becomes necessary to replace a new tube.

During cleaning out periods, cleaning is accomplished by simply removing members and valve plugs, as in the case of box type fittings.

In addition to the Type 1650, the exhibit will also feature Type 2000 sectional design of return bend and Fahrite heat resistant alloy tube supports.

Oil Center Tool Co.
Houston, Tex.

16 Kansas Building

In attendance

A. J. PENICK B. V. FISHER
WALTER BURKE W. C. JOHNSON
PAUL BAIMBRIDGE CARL MOUNT
I. C. WELLS C. J. HILLMAN
H. S. PERRY H. D. START
FRANK QUAIDY

Will exhibit a full line of casing and tubing heads, high-pressure forged steel fittings, adjustable and quick-change chokes, full line of blowout preventers, and probably a christmastree or two. Included in the exhibit will be a new tubing head type "T-19," which permits washing behind liner before packer is set. Having retractable hanger seats, this head permits tubing collars and tubing hanger to pass through the head to facilitate the above operation. After drilling plug and running in a few joints of tubing with liner and packer, blowout preventer is replaced by christmastree made up on top of tubing head connection which is stripped over the tubing and installed on the body of the head. An O-C-T stripper rubber blowout preventer installed above the christmastree permits running tubing to bottom in safety, collars and hanger passing through the stripper rubber which serves as a stuffing box while washing behind liner. After washing and setting packer, tubing is raised to suspension point and retractable seats screwed in to engage hanger.

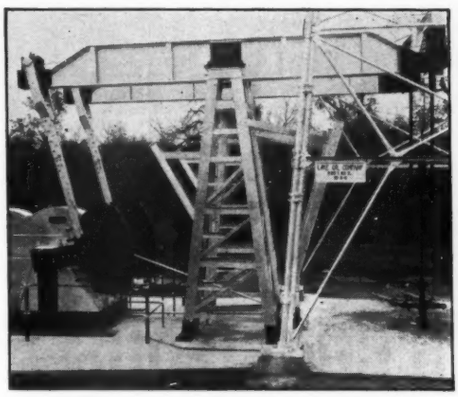
The Oil Country Specialties Mfg. Co.
Coffeyville, Kans.

Corner Mid-Continent and Oklahoma Drives

In attendance

C. B. MORTON W. P. TURNER
D. R. BROWN D. C. MYERS
F. D. STANLEY C. A. ANDERSON
A. G. EVANS-LOMBE H. B. DICK
J. F. SCHUETZ JAMES Q. CALLAWAY
LeROY WILLIAMS D. M. CADE
D. O. (TED) LARKIN C. M. DANIELS
R. D. EKSTRAND D. E. HAZELWOOD
MELVIN L. DICK TOM SCOTT
JOE KILCHENSTEIN, JR. A. L. MANN
B. H. PALAMOUNTAIN J. H. KOUNTZ
HAROLD McSPADDEN GLEN WILSON
W. J. SLAUGHTER CHARLEY MILLER
W. A. LOOMIS

Exhibiting pumping units from 10 horsepower to 100 horsepower, the 100-horsepower being the largest capacity unit on the market. This particular unit is unique in that it is equipped with double beam,



double samson posts and double pitman, the crosshead being located over the well. A reversing countershaft for adapting internal combustion engines to rotary drilling will also be on display.

Automatic Drilling: One of the most novel advancements in rotary drilling will also be on exhibit in the form of an Automatic Weight Control for Automatic Drilling. This machine has been in the process of development for the past eight years and is just being offered for the first time to the industry. The machine is adaptable to standard rotary drawworks and automatically feeds and retrieves, maintaining a predetermined amount of weight on the bit as set by the driller. A demonstration of this machine will be made to all those interested in the development. W. A. Loomis will be in charge of this demonstration.

Oil and Gas Equipment Review
Los Angeles, Calif.

3 Texas Drive

The Oil and Gas Journal
Tulsa, Okla.

Block 5

Oil Well Improvements Co.
Tulsa, Okla.

33, 34 and 35 Texas Building

In attendance

ALF G. HEGGEM ED LIGON
DON BLEVANS PAUL HODGES
W. O. LIGON PHIL CLINE
HERMAN SMITH J. MUMFORD

Exhibit will consist mainly of Orbit drilling and flow valves. Both cut-away and moving models will be shown. Also to be shown will be full line of control heads, oil savers, stuffing boxes, and units for drilling in cable tool wells under pressure.

Oklahoma Portland Cement Co.
Oklahoma City, Okla.

103 Oklahoma Building

Oil Well Supply Co.
Dallas, Tex.

Outside Space, Drake Drive

In attendance

DISTRICT SALES MANAGERS AND SALES ENGINEERS

Exhibiting:

Complete line of steam-saving rotary drilling machinery

"Oil-Well" cable-tool drilling units

Single-crank and twin-crank pumping units

The most complete line of single-crank geared powers

DI-HARD slush pump liners and other DI-HARD applications

Sucker rods and other subsurface equipment

Superior sand pumps

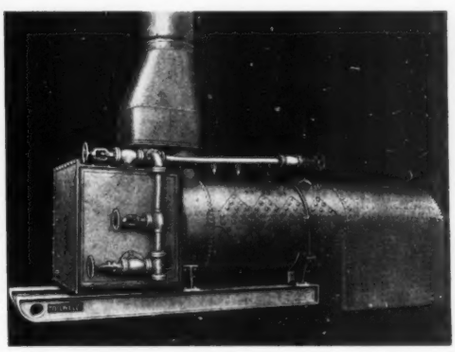
Products of Thermoid Rubber Co.

Products of Plymouth Cordage Co.

Royal Type 3-C water softener

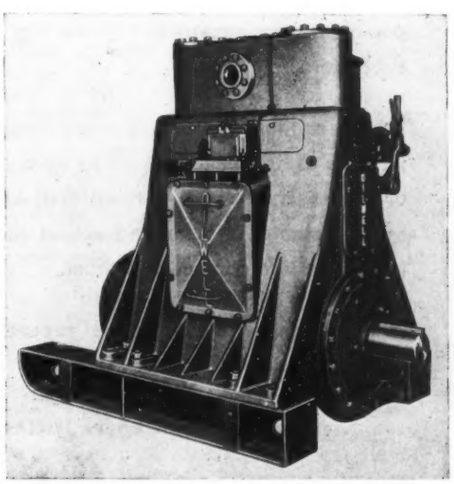
Equipment of advanced design and of keen interest to operating men is on display in all departments of this extensive exhibit. Much of the drilling and pumping machinery is in motion. Izod testing of sucker-rod steel adds plenty of action to the display of subsurface equipment.

Here are a few of the many machinery items that are featured:



"Oilwell"

"Oilwell" portable superheated steam generator.—This steam generator is of portable construction and includes a recently developed smokebox superheater. Revolutionary design facilitates operation at many times its nominal rating.



"Oilwell"

"Oilwell" No. 9 (10"x9") vertical twin-cylinder steam engine.—This engine is the latest addition to the "Oilwell" line of verticals. The "Oilwell" display of vertical twin-cylinder steam engines is of particular interest as this manufacturer developed and introduced this type for oil field service.

"Oilwell" No. 20-P (7¾"x20") power slush pump.—This big fellow is the largest of the extensive line of

Operators are becoming wire-line guide conscious

The above photo shows a shipment of 30 Patterson-Ballagh Guides—probably the largest shipment ever made at one time.

In slightly more than one year, this product has reached a popularity comparable to the acceptance given ten years ago to Patterson-Ballagh Casing Protectors.

Higher drilling speeds and taller derricks and heavier rope have made necessary the use of such a device to dampen the destructive whip and vibration in the line. This Guide is more than a spooler. It actually stabilizes the line and eliminates the hinging action that takes place in the line at the point where the line contacts the drum.

A prominent wire line official recently stated that this Guide actually adds at least 20% to the life of the line.

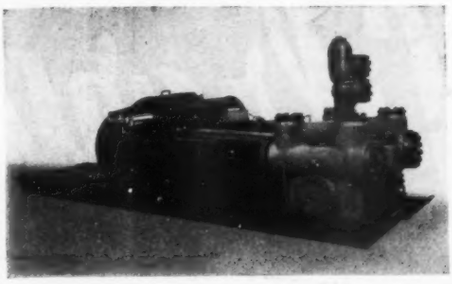
Ask for free wall chart listing the 124 world's deepest wells.

PATTERSON-BALLAGH WIRE LINE GUIDE

PATTERSON-BALLAGH CORP., Ltd.

Plant and General Offices: 1900 E. 65th St., Los Angeles, Calif.
Mid-Continent Offices: 1507 Maury St., Houston, Texas
New York Office: 39 Cortlandt St., New York City

"Oilwell" and Wilson-Snyder power slush pumps on display. It is built for the toughest combinations of



"Oilwell"

volume and pressure, and it is conservatively rated for a maximum input of 415 horsepower at 50 r.p.m.

"Oilwell"

The most complete line of single-crank geared powers.—It is fitting that this manufacturer of geared powers for more than 40 years should display the largest line of modern oilbath single-crank geared powers. With such a complete line of powers—30, 50, 80, 100 and 150 horsepower—"Oilwell" offers an economical size for every application.

Plymouth Cordage Company
Plymouth, Mass.

Thermoid Rubber Division of Thermoid Company
Trenton, N. J.

Oil Well Supply Co. Building
In attendance
D. P. SANDS — D. H. SWINDLER
R. I. WATKINS — R. H. HEMEON
A. F. MATHEIS

Display will include:

Thermoid rotary hose, a specific type of hose for every type of drilling service with greater strength from applying the reinforcing wire by machine under full automatic precision control. The wire is applied under predetermined tension at a carefully calculated angle with a precision comparable to that of a thread-cutting lathe.

Thermoid BX woven brake lining especially designed for oil field service, a dense flexible material comprised of asbestos and a special compound.

Thermo-block, a dense, rigid, molded brake-block made by an entirely new process to withstand temperatures over 1,300° F. without disintegrating or crumbling.

Thermoid multiple V-belts are of special construction giving a "shock absorbing" action and eliminating practically all belt stretch.

Thermoid supplies oil field transmission belting in three constructions: "Oil Country Belting," especially constructed for the most severe service. Thermoid "No. 400 Belting" is recommended for shallow pumping service or as an all-purpose belt for transmission drives. Thermoid No. 410 rubber covered belting is recommended for general pumping service and is furnished when a stitched belt is specified.

Thermoid Oil Country steam hose is furnished in four constructions. A wrapped-and-braided and straight wrapped construction are both available for severe conditions with high steam pressures.

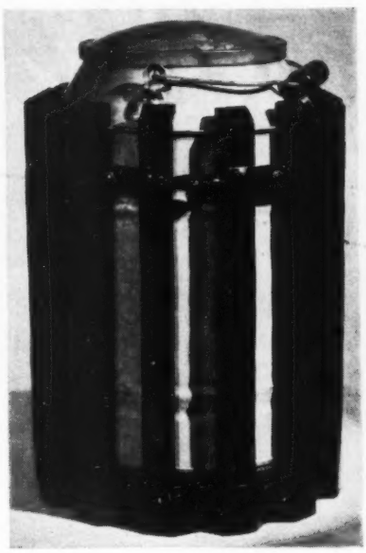
Thermoid Double Weld hose overcomes the handicaps of hose lines that tangle and twist. It contains two equal lengths of specially constructed hose, bonded together to form a single unit.

The Thermoid packing for every industrial installation, automatic heat expanding, moisture expanding and gland pressure rod packings; sectional rings; valve stem packing; air pump packing; water rod packing; gaskets; and sheet packings. Also asbestos sheet packing to resist the action of super-heated steam, hot air, gases, oils, etc

Oklahoma Rig & Supply Co.
Muskogee, Okla.

108 Oklahoma Building
In attendance
S. D. SLAUGHTER

A new wooden safety water can container will be shown which is made of the very best lumber which is in turn protected through use of rustproof screws



Oklahoma Rig & Supply safety water can container

and nails. Bottom is made sufficiently strong to stand hard knocks. An iron band with turnbuckles is used around staves at top to hold them in place and can be tightened as desired. These containers provide satisfactory protection for all types of metal water cans. Container is painted red and green.

The company handles Barrett jack, peavie, cant hooks, Myers pump, lug hook, sledge and spike maul, single- and double-bit axe, picks and mattocks, adze and post mauls, ball pein hammer, adze eye hammer, box hatchets, wire-bound boxes, wooden boxes, gauge rods, cants, arms and handles for standard rig, bull wheel complete, tug side bull wheels, brake side of bull wheel, 10-foot band wheel, 7-foot tug pulley on band wheel, calf wheel, wood fillers for steel wheels, wood bull wheel spooling flanges with or without steel plate, pipe jacks and boards, safety knock-off block, pull rod carriers, dry hole plugs, common, male and female.

All "O.R. Special" handles are all-white second growth hickory made to government specifications.

Oklahoma Steel Castings Co.
Tulsa, Okla.

47 and 48 Texas Building
In attendance
BURTNER FLEEGER — S. J. MOORE
ANTON JOHNSON — E. M. NEWLAND

The exhibit will show representative parts from the company's line of "Tuf-Wear" carbon and alloy electric steel castings, and will illustrate their use and application in the various branches of the oil industry.

"Tuf-Wear" electric steel castings for pumping and drilling equipment, for valves, control-head and pressure equipment, and the latest developments in alloy cast steels for deep drilling and pumping, and high-pressure controls.

The line of "Tuf-Wear" alloy steels will illustrate the wide range of physical properties that can be obtained by various methods of heat treatment, to meet specific requirements of the oil industry for severe or unusual service conditions.

Oliver United Filters, Inc.
New York City

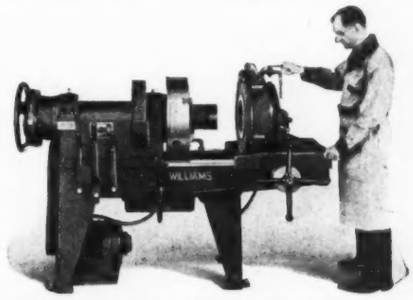
56 and 57 Scientific and Technical Building
In attendance
H. F. OSWALD — T. G. LANEY
G. E. SHAW — J. C. CREEL

The principal exhibit will be a small operating unit of the Oliver Precoat filter which has many applications in refinery practice. The unit will be identical, except for size, to that of the standard Oliver Precoat filter already in service and under construction.

The Oster Manufacturing Co.
Cleveland, Ohio

59-60-61 Oklahoma Building
In attendance
A. S. GOULD — H. C. GARDNER
L. M. GARDNER — S. PIASCIK

Our exhibit will include complete line of hand and power operated pipe and bolt threading tools and machines, which includes the company's new improved



No. 706 O.F. Wilco oil field special machine which has a capacity covering all sizes up to 6⅝-inch O.D. and is capable of cutting a long, correctly tapered A.P.I. thread on all sizes within its range without the use of a taper attachment. Among other items on exhibition will be our new Tom Thumb line of portable and semi-portable pipe and bolt machines and our No. 900 series Repiduction bolt machines. The improved No. 825 Tom Thumb Chaser Grinder with universal fixture for handling all sizes and types of chasers will also be demonstrated.

Otis Pressure Control, Inc.
Dallas, Tex.

224 and 225 Oklahoma Building
In attendance
I. A. MILLER — V. L. FORSYTH
J. C. LUCCOUS

Exhibiting: Otis square kelly drilling head and pressure operated union for drilling in under pressure control; Otis snubbing equipment for the running and pulling of pipe under pressure; Otis removable bottom-hole chokes; Otis mixing valve; Otis tubing safety valve; Otis tubing closing tool; Otis tubing, drill stem and casing plugs; Otis paraffin scraper and stop.

The Ozalid Corp.
New York

74 Scientific and Technical Building
In attendance
THOMAS L. PINKNEY

An Ozalid "Type 1000" combination printer and developer will be in operation. Although this unit is less than 68 inches long, 22 inches wide, and 27¾ inches high, and can be operated on the top of a table in the corner of an office, drafting room, construction shack, or land office it will handle all Ozalid sensitized materials up to 42 inches wide and offers every advantage of the Ozalid white print process.

Those interested in effecting substantial savings in drafting time are invited to see a demonstration of the use of Ozalid transparent duplicates, sensitized transparent papers and cloths which are said to be saving the petroleum industry thousands of dollars in providing time-saving short-cuts in drafting practices.

The Palmer Company
Cincinnati, Norwood, Ohio

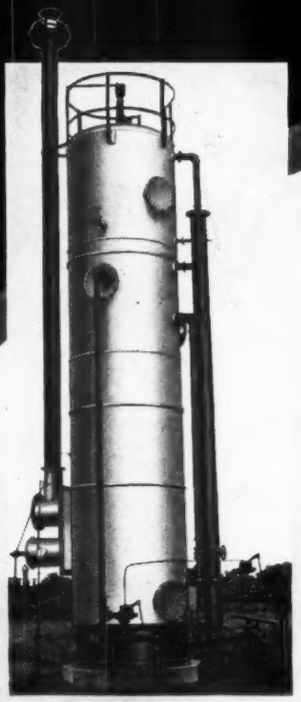
60 Scientific and Technical Building
In attendance
BARTLETT PALMER — BILL DALEY
CARL GAST — FRANK M. ESCH

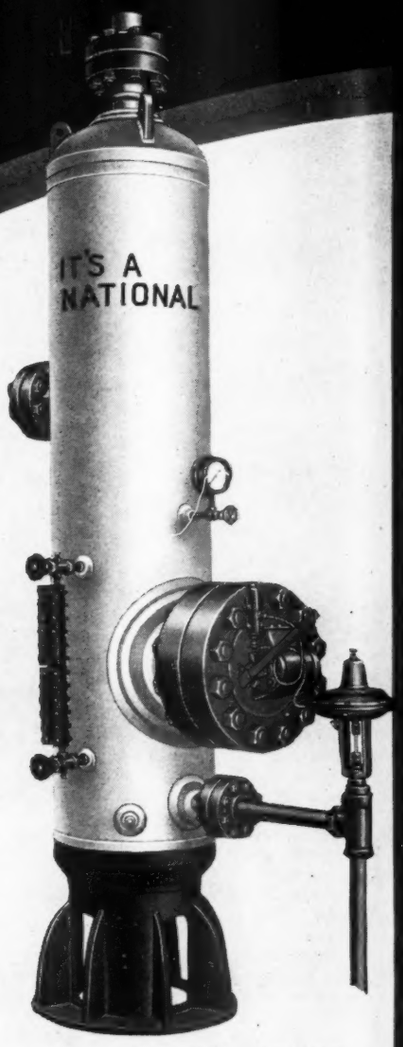
Exhibit. Industrial Thermometers, with "Red-Reading Mercury," the mercury thermometer with a wide red column. There will be an actual demonstration of How a Thermometer Is Made, with full equipment and a skilled thermometer-maker. This was of such interest the last time that the company will bring full equipment so that all may have a chance to see this again. Seldom is anyone able to visit a thermometer factory to see thermometers being made and this is interesting to everyone.

(Continued on Page 273)

A Complete Library

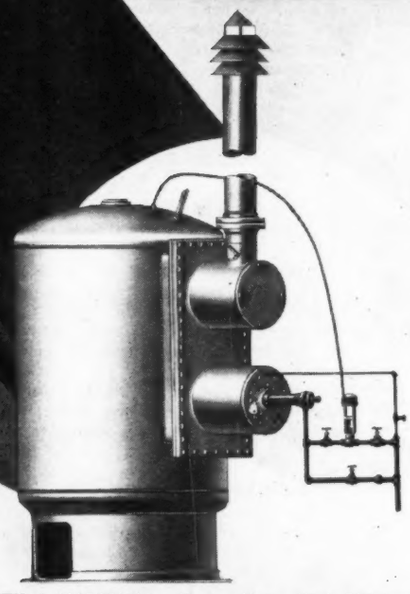
IT'S A NATIONAL — The original and only complete Single Unit Completely Automatic Treating System. Several sizes, types and capacities.





IT'S A NATIONAL—API-ASME Specification No. 4C7-1F, 2'x11' 3,000 lb. W.P. Oil and Gas Separator.

We will occupy six booths in the Texas Building. Scale models of National Tank Company products will be shown. Make our exhibit your headquarters during the Tulsa Oil Show.

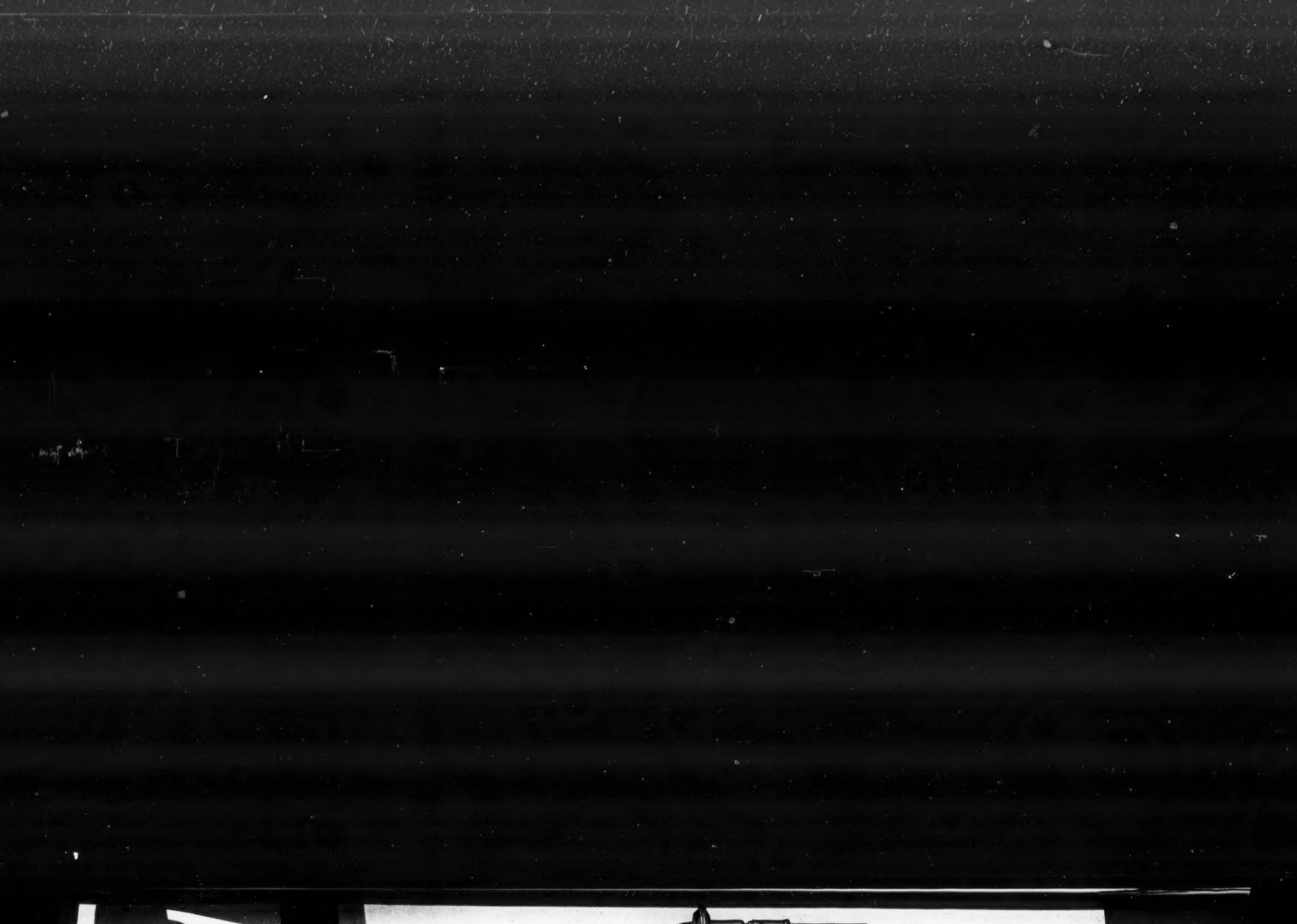


IT'S A NATIONAL—Heater Unit. High Efficiency, Long Life, Fire Tube Type High Capacity Heater for emulsion treating service.

"IT'S A NATIONAL" is our own code Symbol, which obligates us to maintain the highest standards of quality and workmanship; to constantly improve the equipment we produce.

NATIONAL TANK COMPANY

TULSA, OKLAHOMA, U. S. A.



The Parkersburg Rig & Reel Co.
Parkersburg, W. Va.

1 Texas Building and Texas Drive

In attendance

J. M. CRAWFORD — C. A. RUF
P. L. BROOKS — H. L. DICKSON
CHARLES FERGUSON — H. A. BARNES
E. F. SPEIDEN

The Parkersburg Rig & Reel Co.'s exhibition will be confined to a showing of its new Hydronumatic pumping unit.

Patterson-Ballagh Corp., Ltd.
Los Angeles, Calif.

93 and 94 Kansas Building

In attendance

J. M. O'MELVENY — J. C. BALLAGH

Will exhibit its line of casing protectors, and stabilizers which it has been manufacturing for the past 10 years, together with its complete line of installation equipment used in connection therewith.

It will also exhibit the Patterson-Ballagh line spooler. This is a new item that developed in the past 14 months and which is universally used throughout the oil industry. In addition to this the company will exhibit its new style mud gun that is finding great favor in the oil industry.

The Patterson-Ballagh swivel bumper will also be shown. This is now made in sizes to fit all swivels.

The C. F. Pease Co.
Chicago, Ill.

81 and 82 Scientific and Technical Building

Petroleum Electric Power Club
Oklahoma City, Okla.

17 and 18 California Building

In attendance

E. L. ROBINSON, Gulf States Utilities Co., Beaumont, Tex.
F. M. AUSTIN, Houston Lighting & Power Co., Houston, Tex.
O. W. JONES, Central Power & Light Co., Corpus Christi, Tex.
P. M. CORDELL, Texas Electric Service Co., Fort Worth, Tex.
J. E. ELLIOTT, Southwestern Gas & Electric Co., Shreveport, La.
GEORGE WECKEL, Kansas Gas & Electric Co., Wichita, Kans.
F. A. GRAHAM, Kansas City Power & Light Co., Kansas City, Mo.
H. E. ROBERTS, Empire District Electric Co., Joplin, Mo.
C. N. ROBINSON, Public Service Co. of Oklahoma, Tulsa.
W. H. STUEVE, Oklahoma Gas & Electric Co., Oklahoma City, Okla.
E. A. ARMSTRONG, Public Service Co. of Northern Illinois, Chicago.
L. B. BLALOCK, Texas Power & Light Co., Dallas, Tex.
L. T. BLAISDELL, General Electric Co., Dallas, Tex.
WALTER C. BLAIR, Texas Power & Light Co., Dallas, Tex.
J. E. BARFIELD, St. Joseph Light, Heat & Railway Co., St. Joseph, Mo.
GLEN A. COLEMAN, Public Service Co. of Oklahoma, Tulsa.
P. B. FERRIS, Empire District Electric Co., Joplin, Mo.
KENNETH C. JOHNSON, Arkansas Power & Light Co., Pine Bluff, Ark.
K. K. KRAEMER, Houston Lighting & Power Co., Houston, Tex.
B. E. LOWE, Southwestern Light & Power Co., Chickasha, Okla.
H. C. LeVOIS, Gulf States Utilities Co., Lake Charles, La.
J. T. MEEK, Arkansas Power & Light Co., Pine Bluff, Ark.
J. E. MOODY, Southwestern Gas & Electric Co., Longview, Tex.
R. S. MAUNEY, Panhandle Light & Power Co., Borger, Tex.
D. W. REEVES, Gulf States Utilities Co., Beaumont, Tex.
JOHN B. STRUEVE, Southwestern Gas & Electric Co., Shreveport, La.
A. M. YOUNG, Central Illinois Public Service Co., Springfield, Ill.

The club is the outgrowth of a desire on the part of the electric power companies to render greater service, through cooperative effort, to the petroleum industry. All branches of the oil industry are invited to present any of their power problems that might involve the use of purchased electric power. The membership is composed of representatives from power companies operating in the Mid-Continent area, and present headquarters are located in the Public Service Building, Tulsa.

Officers of the club are as follows: C. N. Robinson, Public Service Co. of Oklahoma, president; O. W. Jones, Central Power & Light Co., vice president; H. E. Roberts, Empire District Electric Co., secretary-treasurer.

Exhibit: Booths will be used as a place for representatives to meet and talk with those interested in power for producing, pipe line, and refining purposes.

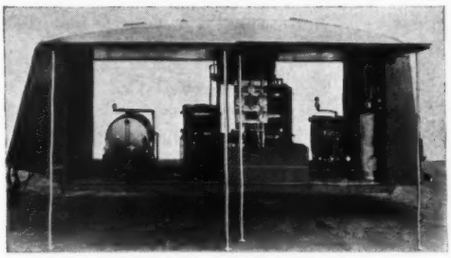
Perco Incorporated
Bartlesville, Okla.

Outside NE corner Hall of Science

In attendance

H. E. MESSMORE — H. A. NEAL
GEORGE BROONER — CHAS. D. HYATT
J. O. TURNER — M. W. CONN

The Perco copper sweetening process will be demonstrated. The demonstration unit comprises both the liquid and solid process of Perco Incorporated mounted within an all-steel house trailer. Each process is capable of processing approximately 40 gallons per hour com-



plete with precaustic washing equipment. All equipment is of standard design and make as is incorporated in commercial units. The processes are both continuous and through the medium of copper salts accomplishes sweetening as per the following chemical equations:

(1) $2RSH + 2CuCl_2 \rightarrow RSSR + 2CuCl + 2HCl$
Mercaptan — Cupric Chloride — Disulfide — Cuprous Chloride — Acid

(2) $2CuCl + 2HCl + 1/2\ O_2 \rightarrow 2CuCl_2 + H_2O$
Cuprous Chloride — Acid — Oxygen (air) — Cupric Chloride — Water

(1) + (2) $2RSH + 1/2\ O_2 \rightarrow RSSR + H_2O$
Mercaptan — Oxygen (air) — Disulfide — Water

The processes will be of particular interest because it comprises a quick, simple once through operation with a minimum of control. The advantages attributable to the process include, among other things, decreased chemical costs, increased octane number, decreased tetraethyl lead requirements, improved induction periods, improved gum tests, reduced inhibitor requirements, and improved color and color stability as compared with other methods of treating.

The Petroleum Engineer
Dallas, Tex.

Block 2

Petroleum Investor
Tulsa, Okla.

2 Texas Drive

Phillips Petroleum Co.
Bartlesville, Okla.

1 and 2 Refiners and Marketers Building

Phister Manufacturing Co.
Cincinnati, Ohio

2 California Building

Pittsburgh Equitable Meter Co.
Pittsburgh, Pa.

Merco Nordstrom Valve Co.
Pittsburgh, Pa.

35, 36, 37, 38 Scientific and Technical Bldg.

In attendance

COL. W. F. ROCKWELL — E. A. JOHNSON
CAPT. A. E. HIGGINS — D. D. FOSTER
P. C. KREUCH — C. H. WYMAN
E. E. HEDENE — A. D. MacLEAN
ORVILLE COCHRAN — RALPH MARRIOT
C. K. MADISON — O. W. BARNETT
W. R. McLAUGHLIN — D. D. COLLINS
ROY R. BUSH — L. R. VanARSDALE
F. N. DILLMAN — J. L. COTTRELL
F. B. WOLFE — C. R. ZESKEY
Z. A. STANFIELD — C. R. PARKER
A. J. KERR — W. J. McART

Equipment to be exhibited:

Emco McGaughy Integrator, which is an orifice meter chart calculating machine.

Emco Standard domestic gas meters, used in domestic service.

Emco large capacity gas meters, used in industrial service.

Emco orifice meters.

Emco oil and gasoline meters for all types of services.

Emco gas regulators for use in all regulation problems.

Emco hot water meters.

Emco cold water meters.

Emco salt water meters.

Merco Nordstrom lubricated plug valves.

Nordstrom "Hyreseal" lubricated plug valves.

Shown for the first time will be the Pittsburgh Rotocycle Meter, an entirely new development in Rotary Liquid Meter Design. The Rotocycle is for use on pipe lines handling crude or refined petroleum products. It is unique in that there are no reciprocating parts—all mechanism rotates.

Pittsburgh Steel Co.
Pittsburgh, Pa.

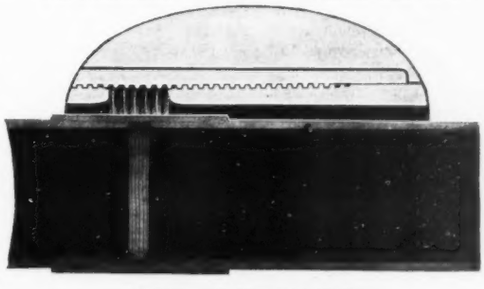
4-5-6 Texas Building

In attendance

W. B. BAYLOR — S. E. ELDER
C. V. LALLY — G. W. NOVAK
E. J. PROTIN — T. G. STITT
A. S. VANDERVOORT, JR. — J. WAIS, JR.
ELMER T. WIBLE

The company will exhibit its line of seamless steel casing, drill pipe, oil well tubing and line pipe in both standard A.P.I. and exclusive designs of certain items. Of particular interest will be two new developments not heretofore exhibited, one in drill pipe and one in casing.

The Pittsburgh Special external upset internal flush



drill pipe with the double grip joint has come into prominence during the past year. With respect to pipe sizes and threading dimensions it conforms to that recently recognized by the A.P.I., but in addition has an accurately machined "land" area on the pipe beyond the threads and when made up with corresponding tool joints has an effective shoulder seal and much greater strength due to the 35 per cent or more of added contact surface. The added strength of this "Double Grip" feature enables operators, with full safety, to take advantage of the decreased pump pressures, the use of larger core barrels, the savings in fuel, power equipment and savings in wear on tools afforded by the internal flush pipe.

The Pittsburgh Double Seal casing is a quick running high efficiency seamless steel casing furnished in Grades C, D and X steel. It has a modified square, or Acme-Type thread, six threads to the inch. The thread form and length permits quick stabbing and quick running. The thin wall coupling is of alloy steel.

In addition to the correct design and accurate machining of the threads to give a good seal in the threads, a feature of this casing is a machined "land" area on the pipe beyond the threads and a corresponding recess on the coupling, tapered in exact alignment with the threads which provide an additional and effective shoulder seal, whence comes the name "Double Seal" casing. Tests that have been made on this casing demonstrate not only the efficiency of the seal, but that the joint efficiency increases with the weight of pipe.

Podbielniak Centrifugal Super Control
Chicago, Ill.

22 and 23 Scientific and Technical Building

Portable Rig Company, Inc.
Houston, Tex.

Block Y

In attendance

L. E. HODGES — L. D. CAIN
J. L. KLUPPEL — W. S. LIGHTBOURN
E. R. POOLE — J. P. MORROW
F. A. CHANCE — D. C. GASSOWAY
H. D. ROBINSON — VAL R. WITTICH, JR.
CHARLES D. WAGNER

Showing in operation Model R-876-8 and Model 1438 Portable rigs, the Model 500 Utility plant, and other portable rig equipment.

V-belt drive rig is designed to meet the demand for V-belt driven rig for 3,000 to 10,000-foot drilling, using conventional drawworks. Drive to drawworks from reverse clutch is by No. 4 chain from a double sprocket. Bearing pedestals are cast steel, electrically welded to skids to insure alignment at all times. All bearings are tapered roller. Substructure breaks down in three sections to provide proper width for road clearance in hauling.

Totally enclosed rig for 4,000- to 10,000-foot drilling includes fully-enclosed drawworks, two engines, compounding drives, and substructure. A pump provides force-feed lubrication to all chains, bearings, sprockets, and shafts. Self-energizing brakes are water-cooled by circulation in shoes attached to bands. Heavy-duty friction clutches on drum and rotary shafts allow maximum power of engines to be utilized when most needed. Heavy-duty herringbone gear transmission provides four forward and three reverse speeds. Dual engine drive (150- or 180-horsepower gasoline, natural gas, or diesel fuel) permits power of both engines to be compounded into drawworks or pumps. Air compressor included in the unit is used to engage and disengage engine clutches. Substructure, allowing either one or two pumps to be set on ground level, fits any height derrick, and provides walkway around entire unit.

Model 500 Utility Plant is designed for use with rigs where power other than steam is used. The 5-kw. (7-kw. optional), 125 volts, DC generator furnishes ample power for lights and shale shakers. The air compressor is a 15 cubic foot, 150-pound pressure unit; the 10-inch casing skids serve as a reservoir. The high-pressure 3-inch rotary type water pump furnishes 100 gallons per minute. Powered by a model XAHU Waukesha, 4-cylinder, 27-horsepower engine. Completely assembled with instrument panel, V-belt drive, Dodge enclosed friction clutches which permit individual operation of each unit, and mounted on a rugged base with steel floor plate.

Productive Equipment Corp.
Chicago, Ill.

20 Kansas Building

In attendance

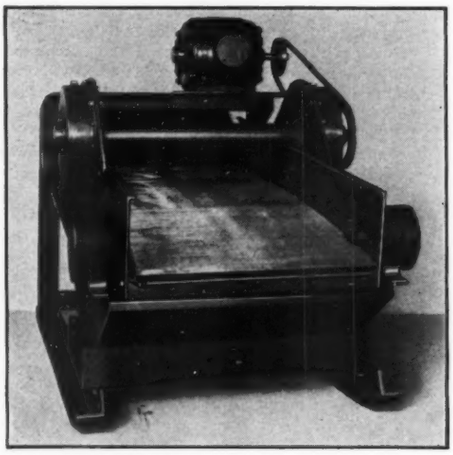
L. H. LEHMAN — L. E. SOLDAN

Exhibiting 'Mud Hog" vibrating screen for rotary mud. "Mud Hog" is the trade name the corporation has given this new vibrating screen used for reclaiming and conditioning rotary mud or clay compounds in the oil fields.

The vibrating screen is a compact unit requiring the minimum amount of space in the drilling set-up. The feed chute is built as an integral part of the screen and all parts have been designed and assembled at the proper angle to insure the correct flow of mud fluid to the screen at all times. The complete unit is mounted on skids for easy transporting from one location to another.

It operates by imparting, to the screen, vibrations from the eccentric which gives a gyrating circle throw motion, that remains constantly balanced regardless of the volume of mud being passed over the screen.

Design features include positive eccentric action—full-floating shaft—vibrating mechanism fully inclosed in dustproof case and operating in a bath of oil—uses



standard width screen cloth from roll without special preparation. The machine is a complete unit ready for operation.

The Wm. Powell Co.
Cincinnati, Ohio

45-48 Scientific and Technical Building

In attendance

JAMES COOMBE — E. K. PIERCE
WILLIAM HEILIG — H. P. MacGREGOR
A. K. BIRCH

Complete line of bronze, iron and steel valves, particularly those used in the oil industry, including the new 350-pound steam valves for drilling engines. The company's regular line of bronze valves used throughout the oil industry, iron gate, globe and check valves, as well as a complete line of steel valves, line type, drilling through valves and general refinery valves for the varying pressures and temperatures. In addition, there will be on display certain bulk storage and filling station valves, wet hose nozzle valves, special foot and check valves for this service.

Progressive Brass Mfg. Co.
Tulsa, Okla.

11 Texas Building

In attendance

E. J. THOMAS — N. A. DOOLITTLE
C. O. BECKETT

Equipment to be on display follows: Brass, bronze and aluminum castings; special alloy castings to meet the special requirements in oil field work; finished bronze replacement parts for oil field engines and clutches; special bronze and aluminum parts finished according to customer's specifications; aluminum, brass and bronze rods, sheets and tubing; basic metals used in the manufacture or alloying of nonferrous metal castings.

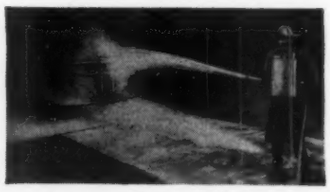
The Pyrene Manufacturing Co.
Newark, N. J.

38 and 39 Oklahoma Building

In attendance

J. P. MALONEY — W. L. FERRIER
B. S. ALLEN — B. F. COVINGTON

Four new fire extinguishers and a foam-making water nozzle of larger capacity will be displayed. There will be two new seamless drawn shell 2½-gallon



extinguishers, the Guardene soda-acid and Phomene foam types, the shell and dome of which are of one-piece construction assuring greater strength with resulting greater safety, and improved appearance.

Two new gas cartridge extinguishers which eliminate the cost of annual recharges will also be shown. The Wintergrade is filled with an antifreeze solution; the Hydrogarde with plain water. When filled with distilled water the Hydrogarde may be used for telephone switchboard fires. Both of these 2½-gallon extinguishers are approved for fires in ordinary combustible materials and their contents are discharged by the pressure from a carbon dioxide gas cartridge the sealing disc of which is punctured when the extinguisher is turned up side down and the plunger in the ring cap is struck on the floor.

A large size Phomaire play pipe which produces 500 to 750 gallons of foam per minute by combining water, a special solution and air will make its initial I.P.E. showing. This new fire-fighting tool which employs an entirely new principle, mechanical rather than chemical, requires only a limited supply of water. One gallon of the Phomaide solution makes 350 gallons of foam. The same method has also been adapted to a stationary unit. In England where its use preceded its introduction to the United States practically every municipal fire brigade as well as a large number of petrol and industrial concerns have at least one of these new play pipes.

In addition to these new products the extensive Pyrene line of vaporizing liquid, foam, soda-acid and antifreeze type extinguishers as well as the C-O-Two carbon dioxide type extinguishers, hose reel and rack units, manual and automatic systems made by the Pyrene associate, the C-O-Fire Equipment Co., Newark, N. J., will also be on display.

Proportioneers, Inc.
Chicago, Ill.

133 Texas Building

In attendance

R. P. LOWE — C. K. PERKINS
BAILIE VINSON

Exhibiting Proportioneers' apparatus for gum inhibiting, coloring gasoline, acid treatment of lube oil; blending lube oils, gasoline, and asphalts; proportioning pumps of various sizes and types.

Builders iron foundry metering and controlling equipment for steam, water, gas, and dry materials, including:

Shunt meters.

Flo-Watch mechanical recorder.

Type M Venturi register-indicator-recorder.

Chronoflo electric telemeter.

In general, all units will be connected for operation so that complete explanations can be made with moving units so that nothing will be left to the imagination.

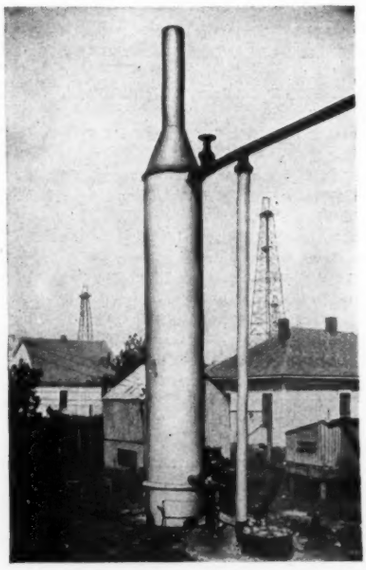
Quigley Co., Inc.
New York

1 and 2 Scientific and Technical Building

In attendance

D. F. McMAHON — J. W. RIDDLE
H. C. THAYER — HARRY ETTER

A complete line of Quigley products will be displayed.



Of particular interest to the petroleum industry is INSULAG, the refactory lagging for temperatures up to 2,200° F.

INSULAG is a superior refractory lagging with un-

surpassed insulating properties for use on high temperature equipment. INSULAG may be applied on hot or cold surfaces of flues, ducts, drums, etc.; also on refractory brick and concrete, and as a finishing coat for INSULBLOX or other insulation.

INSULAG possesses at recommended temperatures exceptionally high refractory and insulating properties. The added refractoriness of INSULAG allows it to be used at operating temperatures at which other lagging materials fail.

Oil producers find INSULAG highly successful in insulating oil heaters—cuts heat losses—reduces fuel costs and improves heat control—requires less gas to maintain constant heat—easy to apply.

The usual practice in insulating oil treaters is for two men to set up a temporary scaffold and windbreak. Put on lath. Apply two coats of INSULAG to a fine finish. Take down scaffold. Load out by 4 p.m.

INSULAG sets quickly—adheres to hot or cold surfaces—expands after application and retains volume—no shrinkage, cracks, pulling away, or powdering off—develops high mechanical strength—withstands shock, abrasion and vibration—durable—defies weather—does not lose insulating value after repeated heating.

Makes a white, hard-finish surface, weather-proof, frost-proof, air-tight, and free from cracks.

Shipped in powdered form. Mixed with water on the job to a heavy troweling consistency.

INSULAG is being rapidly adopted by oil refiners to insulate and seal the brickwork of oil stills and boiler heating as well as for hot process tanks—drums, ducts, stacks and other heating equipment.

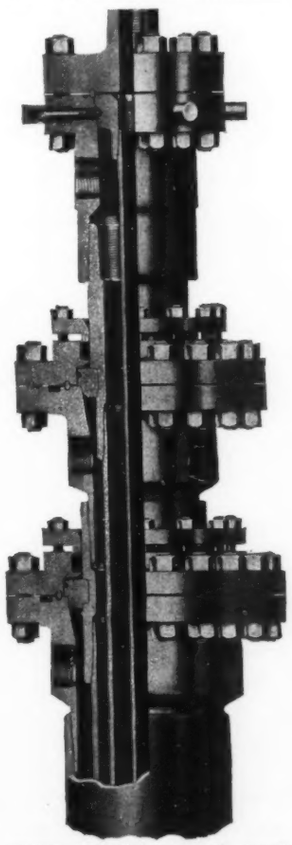
Rector Well Equipment Company
Fort Worth, Tex.
1 Oklahoma Building
In attendance

L. L. RECTOR	R. V. EVERIDGE
W. R. HAMMOND	C. W. ZARTMAN
C. L. CRON	W. P. KNIGHT
E. W. BROCKMAN	M. L. JACKSON

GEORGE COLLOM

Displaying a complete line of: Rector casing heads and tubing heads, cable tool drilling head, Rector special flanges, and Rector-Seal, the improved thread compound.

An important feature of the Rectorhead booth is



the new Rector extended recessed coupling, which permits the mounting of a 10,000-pound test tubing head directly on the recessed coupling, eliminating

(Continued on Page 279)

HANDLE ON TOP *for* FAST ACTION

Also
GENUINE WILLIAMS' "VULCAN"

Unbreakable, light, compact, rapid in action. Made entirely of wrought steel, with drop-forged jaws, base and handle. Four sizes for pipe 1/8" to 8".

The original CHAIN PIPE VISE

"VULCAN SUPERIOR" CHAIN PIPE VISE

● With "Vulcan Superior" you have everything "above the bench"—ready at hand. *Convenient* for rapid operation. A sturdy tool, wholly made of tough wrought steel, with reversible jaws which provide *double service.*

Two sizes, for pipe 1/8" to 4-1/2"—both sizes having 1/2" greater capacity than other vises of corresponding size. Ask for literature.

J. H. WILLIAMS & CO.
275 Spring Street, New York

Headquarters for: Drop-Forged Wrenches (Carbon and Alloy), Detachable Socket Wrenches, Reversible Ratchet Wrenches, "C" Clamps, Lathe Dogs, Tool Holders, Eye Bolts, Hoist Hooks, Thumb Nuts and Screws, Chain Pipe Tongs and Vises, etc.

WILLIAMS
SUPERIOR DROP-FORGED TOOLS

"ORDER ME MORE OF THE SAME"....

Arcos electrodes are "operator's" rods—built to work better on the job. Test Arcos electrodes yourself, or have your men test them. Send us the base metal specifications of the metal you're welding, and we'll send you samples, and Arcos Technical Bulletin No. 2, "The Arc Welding of Stainless Steel Industrial Equipment".

ARCOS ELECTRODES
CHROMEND for Stainless
ALUMEND for Aluminum
NICKELEND for Nickel
BRONZEND for Bronze
MANGANEND for Hardness
CAREND for Steel
REFORMEND for Cast Iron

STAINLESS ELECTRODES

ARCOS CORPORATION
DEPT. D. 401 N. BROAD ST. PHILA., PA.

At the Oil Show —
WE ARE OUTDOORS
On Oklahoma Drive

Be sure to see our exhibit of NEW DEAL PIPE CLEANING MACHINES AND PIPE STRAIGHTENING MACHINES. See these world famous machines in action at the International Petroleum Exposition.

The NEW DEAL SPECIALTY CO. INC
OKMULGEE, OKLA. U.S.A.

CALLING ALL

to look at this

DO YOU KNOW ABOUT THESE TAYLOR DEVELOPMENTS?

New refining methods demand modern instruments. In providing instruments for precision control of temperature, pressure and flow for these methods, Taylor has pioneered. Here are some of its achievements:

FULSCOPE CONTROLLER with the Universal Sensitivity Adjuster, the first graduated dial with infinite positions of sensitivity for obtaining the best throttling range for every job. An original Taylor feature.

PRECISION VALVE ACTION. Originally an inbuilt part of the Taylor Dubl-Response Control Unit, this was later made available in a separate unit, the Valv-Precisor.

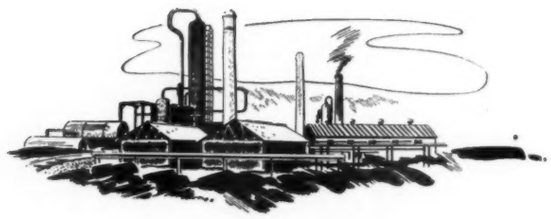
THERMOSPEED. Taylor led the way in developing greater speed for tube system response when separable wells are used, as they always are in refineries.

ACCURATUS TUBING permits the use of the all-steel welded tube system, automatically compensated, without loss of the advantages of mercury as the actuating medium. Until its introduction, mercury tube systems longer than 25 feet were unsuccessful. Now lengths one hundred feet and over are not unusual.

MOTOSTEEL EVENACTION MOTORS. Taylor was the first to use the all-steel welded valve motor, both stronger and lighter than older types.

INDUSTRIAL THERMOMETERS with BINOC Tubing make temperature-reading easier . . . end guessing. BINOC Tubing provides 2 to 5 times greater visibility of the mercury column and eliminates bore reflections.

If you want proof of pressure and flow—



LOOK AT THIS 16,000-barrel *combination selective cracking* unit. Its initial firing run was 34 days.

All guarantees of capacity and products were met without a single barrel of off-specification products! Taylor Instruments provided the precise control of temperature and flow that helped make this record possible.

Here's another plant, designed to *operate on Mid-Continent and Corning crudes.* It ran continuously for 39 days on its first firing, making specification products at guaranteed capacity. Temperature, pressure and flow were—and are—Taylor-Controlled.

And still another. On an *atmospheric-vacuum distillation unit* in the Mid-Continent field, Taylor Systems maintained temperatures, flows and pressures within such close limits that the end points of the products were held more

• VISIT US IN

nipple, and thereby making a more direct and rigid tie-in of tubing head and bradenhead. This coupling improvement retains the repackable feature. The thread used in landing the pipe is not used as a permanent connection. It further provides a safety thread below the christmastree for unscrewing and stabbing over in event of a wild well.

Shown for the first time at an exposition is the Rector Type SS tubing head, 3,000-pound test, a slip suspension head with stripper feature below which permits the running and pulling of tubing under pressure. This stripper element is a special oil proof neoprene. This head is equipped with a tentative A.P.I. iron packing ring and regularly equipped with 600 series A.S.A. flange, yet furnished with 900 series flange, upon specification.

The Rector-Seal, the new thread compound for protecting threaded connections against leakage, is also displayed.

The special Rectorhead arranged for welding is an addition of the former line of Rector casing heads.

Reda Pump Co.
Bartlesville, Okla.

East Half Space C Between Seminole Street and Fitts Street

In attendance

A. ARUTUNOFF — P. E. LOYE
G. S. SCHUHMACHER — E. R. FLINT
DALTON LAIN — H. H. DUCK
J. C. HUTCHINS — E. V. GUFFY
O. M. HOLTSCLAW — BERT SUTTON, JR.
CHARLES HOLM — J. L. HILLIARD
BEN SEAMAN

Exhibit will feature the Reda pumping unit for small capacity or prorated wells. On display: Reda electrical submergible motor, Reda centrifugal pump, Reda protector, Reda oil well cable, Reda cable reel, automatic intermitting controls, Reda engine generator for single or multiple installations, and Reda electric switch board.

Reed Roller Bit Co.
Houston, Tex.

2-12-13-14-15 Texas Building and Center Block "S" on Texas Drive

Martin-Decker Corporation

Long Beach, Calif.

In attendance

R. G. HAMAKER — J. V. PENNINGTON
H. B. BOOK — W. J. NUTTO
L. T. ANDERSON — T. J. STANCLIFF
ALEX VALLANCE — NATHAN JANCO
CY JOHNSON

The company will exhibit in the Texas Building its general line of rotary drilling tools, namely, DK rock

bits; reamers; Kor-King core drills; B-R wire line drilling bits, and a complete line of tool joints including the new internal flush and double streamline. In Booth No. 2 will be displayed the new pressure drilling equipment and the new Reed plug valves.

A feature of the entire Reed exhibit will be the outdoor exhibit on Texas Drive of the Reed air-balanced pumping units and of the Reed rotary engines.

The Refinery Supply Co.
Tulsa, Okla.

7-8-9 Scientific and Technical Building

In attendance

W. A. SCHLUETER — J. B. OKESON
H. F. GOODENOUGH — T. C. WILLIAMS
C. R. DUFFY

Exhibit of modern laboratory apparatus and glassware including display of Corning Glass Works Pyrex laboratory ware. Additional equipment on display will include gas testing instruments, Cochrane flow meters and steam specialties, Hays combustion instruments and combustion controls.

Regan Forge and Engineering Company
Houston, Tex.

43 California Building

In attendance

W. S. PROCTOR — EDWIN W. SANDISON
ED KIRBY — LEO DOWSE

Showing Type K blowout preventer.

Showing at Bovaird Supply Building the Regan Type FL crown block, 54-inch traveling block, and Type 200 cast steel hook.

Republic Steel Corp.
Cleveland, Ohio

16 to 21 Texas Building

In attendance

W. M. NECKERMAN — C. H. ELLIOTT
J. E. HOLMES — G. W. LOCKE
M. B. BROWN — G. F. HESS
C. W. EAST — HOYLE JONES
M. J. CAUGER — S. A. KNISELY
C. W. RUTH

Republic Steel Corp. will feature its new heat treated casing which insures greater setting depths for lighter weights maintaining the present factors.

Republic will also feature belled-end casing for welding in the hole. Belled-end joints, both welded and not welded, will be on display.

An interesting display of oil country products fabricated from Republic Alloy Steels will also be included in the exhibit. Truscon Steel Co., a subsidiary of Republic, will have one of its standard steel buildings in the Republic exhibit.

Republic Supply Co.
Tulsa, Okla.

74 and 75 Oklahoma Building

The Ridge Tool Company
Elyria, Ohio

28, 29 and 30 Texas Building

In attendance

W. L. PARCELL — R. C. CHAMBERLIN
JAMES B. GRAHAM — SETH W. SMITH
J. J. McINTOSH — CARL MARINGER

Exhibiting Rigid pipe wrenches, pipe cutters, pipe vises, tubing cutters, pipe threaders, Ridgoil, extractors, etc. The display will be used for the first time, brand new and very attractive.

Riise Engineering Co.
Columbiana, Ohio

Corner Dawson and Oklahoma

JOHN RIISE — C. A. BOWER

Exhibiting one Model X-170 Riise drilling engine, rated 170 horsepower, 7,000-foot drilling capacity, 10½ feet by 42 inches overall frame measurements. The weight complete 7,000 pounds, including electric generator, starter and batteries, 28-inch main pulley, engine hood and butane vaporizing setup. Engine will be run on "Skelgas," demonstrating the Riise gas mixing valve and the Riise new design butane vaporizer equipment. The same engine can be run on gasoline, natural gas, butane or propane.

The Riise drilling engines are furnished with two independent ignition systems and two independent fuel systems as standard equipment and drilling powers with a nonadjustable multiple-disc clutch; a three-speed transmission, high, low and reverse and all speeds controlled and manipulated from the derrick floor; all rotating shafts and gears mounted on ball or roller bearings; no keyways with loose keys used in any rotating shafts—multisplines used instead; a full-floating main drive shaft with a floating inner driven flange; two shoes, internal expanding main pulley brakes with floating brake cam and floating brake anchor; the cable tool drilling unit weighing less than 7,000 pounds will drill in third hole and pull a set of fishing tools out of a well deeper than 6,000 feet.

Robinson Packer Co.
Tulsa, Okla.

5 Oklahoma Building

In attendance

J. M. WOOD — S. A. TENER

Exhibiting oil and gas well packers and plugs.

Rollway Bearing Co., Inc.
Syracuse, N. Y.

58 California Building

In attendance

W. H. FLOAT — D. A. CANT
C. W. McNEIL — SCHUYLER YATES
H. A. PIERCE

Exhibiting a very comprehensive display of radial and thrust bearings, with special emphasis on designs capable of high load capacities.

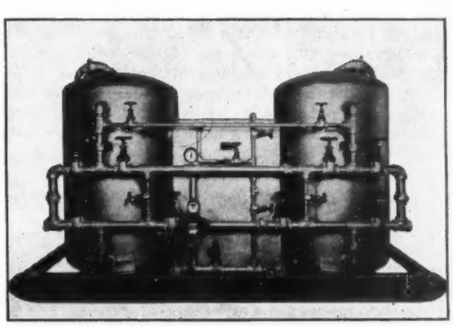
The Royal Manufacturing Co.
Tulsa, Okla.

30 Refiners and Marketers Building

In attendance

F. W. JOHNS — W. R. MALLORY
J. V. McARTHUR — L. E. McCULLOUGH
CHARLES BRANNEN

Featured in the exhibit will be a complete miniature model Royal portable water softener for drillers; the model will be shown with water running through



it and then pouring over a lighted waterfall. A miniature oil camp will be shown which will be painted with various Royal high-temperature aluminum and black paints. Also featured will be Royal tool joint dressing, Royal C-X cooling system cleaner, and Royal high-temperature paints.

A full size Royal portable water softener will be shown in connection with the Oil Well Supply Co. exhibit. The softener will be connected with Oil Well boilers and will probably be shown in operation.

S K F Industries, Inc.
Philadelphia, Pa.

67-68 Texas Building

In attendance

R. C. BYLER — R. H. DeMOTT
F. E. ERICSON — G. PALMGREN
H. L. GADDIS — A. H. DIXON
W. F. WEIDNER

Exhibiting a complete line of ball and roller bearings and pillow blocks.

Safety Equipment Service Company
Cleveland, Ohio

12 Scientific and Technical Building

In attendance

B. W. NUTT — FLOYD BLAKE

Showing a complete line of accident prevention equipment including safety goggles for chippers and grinders, and for general purposes welder's goggles,

safety clothing, gloves, leggings, aprons, shoes, respirators, gas masks, welding hoods, first-aid equipment, and machine guards. Also several new styles of the Drednaut goggles, a new respirator, and several other new devices.

Scintilla Magneto Co., Inc.
Sidney, N. Y.

10 Oklahoma Building

In attendance

A. J. POOLE — J. H. MAYFORTH
J. T. LANSING

Booths 9 and 10 will contain the exhibits of Scintilla Magneto Co., Inc., of Sidney, N. Y., and of Zenith Carburetor Co., Detroit, Mich.

Bendix magnetos and Scintilla magnetos will be exhibited. A special demonstration will be a low fire hazard magneto operating in a chamber filled with explosive gas. This gas is later ignited to demonstrate the low fire hazard qualities of the magneto.

A new battery ignition specially designed for large stationary engines will be exhibited. This system eliminates the use of long high tension cables on large engines.

Zenith Carburetor Co.
Detroit, Mich.

9 Oklahoma Building

In attendance

B. W. WESTCOTT — F. E. WILLIAMS

Zenith heavy duty carburetors for truck and industrial use will be shown, a new line of gas and gasoline combination carburetors and also a new straight gas carburetor. A line of filters will be shown, suitable for use with oil and gasoline.

Sealed Power Corp.
Muskegon, Mich.

54 Oklahoma Building

In attendance

PAUL C. JOHNSON — C. ALLEN FULMER

Will display a complete line of piston rings for industrial engine replacement. This will consist of compression and oil-control rings, both ventilated and scraper type, for all kinds of industrial engines, compressors, pumps, etc. This display will place particular emphasis on ring sets recommended for engines commonly used in the oil fields. The company is sure that their Joint-Seal ring, an original development of Sealed Power Corp., will receive favorable comment at the show. This joint was designed specifically for use on large industrial rings commonly used in the oil fields—the purpose of this joint being to completely seal a piston ring against blow-up at the gap.

Seismograph Service Corp. and Engineering Laboratories, Inc.
Tulsa, Okla.

10 Scientific Building

In attendance

G. H. WESTBY — W. G. GREEN
S. A. SCHERBATSKOY — W. L. DUCKER
R. P. GREEN — W. R. COLEMAN

This company will exhibit a portable reflection seismograph unit complete. This instrument is thoroughly field worthy, being used by its crews at present in Trinidad, Venezuela, Asia, and Netherlands East Indies. Eight of these units are now engaged in foreign work. This unit has proved very practical for certain Gulf Coast areas. It embodies all the features of the company's latest standard reflection units, and no unit of the equipment weighs over 100 pounds, so that is is readily portable by man power.

The company's portable hard rock rotary shot hole and core drill disassembles into units weighing less than 250 pounds each, so that it is readily portable on animals. Four of these units are at present operating in Asia, Trinidad, and Venezuela. This drilling equipment is mounted on two trailers, which also disassemble very rapidly into light units. The whole drilling equipment can be assembled or disassembled in 30 to 40 minutes.

The company will also exhibit such oil field specialties as its Hayward mud sampler for obtaining rapidly and accurately the characteristics of the cuttings and drilling mud for rotary rigs, and its pipe line radio for locating buried pipe lines, fittings, etc.

Service Station Equipment Co.
St. Louis, Mo.

69 Refiners and Marketers Building

In attendance

A. W. DEACON — J. M. THUNE
L. A. PRESCOTT

Exhibiting a complete line of service station equipment including the latest Bennett creation, Series 371 computing pump.

Shafer Bearing Corporation
Chicago, Ill.

55 California Building

In attendance

V. W. PETERSON — R. B. HOOVER
M. J. TENNES, JR. — A. H. WILLIAMS
E. C. FERGUSON — GEORGE J. FIX
A. S. KENNEDY — J. H. SPRINGER
E. D. MALTBY

Exhibiting: Shafer self-aligning roller bearings, and stock mounted roller bearing units. The Shafer concave roller design which provides inherent self-alignment, and capacity for both radial and thrust loads, will be exhibited. Among the mounted bearing units which will be displayed will be pillow blocks, including a new line with welded housings; duplex units; crank pin bearing unit; cartridge unit; flange unit; flange-cartridge units.

The Shaffer Specialty Co.
Tulsa, Okla.

Outside, Northeast Corner of Oil City and Rodessa Way

G. W. SHAFFER — B. F. KELLEY
J. H. KEYES

Will display Model 400 rotary drilling unit consisting of drawworks power transmission unit and with dual diesel engine drive. This unit is designed for drilling 6,000 feet.

Also exhibiting Model 250 rotary drilling unit for slim hole or shallow drilling. This unit will include the drawworks power transmission drive and dual diesel engines.

There will also be shown a double drum drilling and servicing unit incorporating a new type of beam construction for cable tools operation, the unit being convertible from cable tool to rotary operation. Other items to be displayed are the Shaffer rotary hose coupling and flexible ball joints for rotary hose.

Shaffer Tool Works
Brea, Calif.

1 and 2 Oklahoma Building

In attendance

W. D. SHAFFER — JOHN H. MORAN
CHARLES GEDDES — C. W. VOGT

Exhibiting:

Type 38 Shaffer cellar control gate in a new design, but employing the basic principles of the Shaffer sealing method.

Type 38 Shaffer rotating blowout preventer consisting of a rotating packing member that is self-sealing while drilling, running, or pulling pipe.

Shaffer improved flow beans of various designs.

Shaffer liner hanger.

The Sherwin-Williams Co.
Cleveland, Ohio

55 Oklahoma Building

In attendance

K. H. WOOD — W. J. MONTGOMERY
A. W. EVERETT — E. J. GEBHART

Exhibiting rust inhibitive Kromik primer, fume resisting paints, synthetic and lacquer finishes for all types of surfaces including trucks, machinery and engine enamels, etc. Kem Art metal finish for a low heat, quick baking product will also be displayed.

Sinclair Prairie Oil Co.
Tulsa, Okla.

99, 100, 111 and 112 Texas Building

Sivyer Steel Casting Co.
Milwaukee, Wis.

48 Kansas Building

In attendance

RALPH BURKE — W. V. C. JACKSON
WALTER S. SMITH

Will exhibit models of refinery fittings such as return bends, tube supports, and so forth. Included in the exhibit will be sectional models of a 4½-inch by 8½-inch uniflow sectional return bend complete; a 4-inch by 8-inch mule ear sectional return bend complete; a 4-inch by 9-inch horseshoe sectional return bend; and a 2-inch by 8-inch mule ear sectional return bend complete. Also sectional tube hangers and other types of tube supports as well as miscellaneous castings and technical charts covering the steels used for oil refinery equipment.

Skelly Oil Co.
Tulsa, Okla.

Skelgas Co.
Kansas City, Mo.

Refiners and Marketers Building

In attendance

RUSS R. STAMPER — E. H. WIET
E. W. BERRY — W. W. OVERMAN
H. B. HOGE — W. D. LANCE
MRS. F. O. SHARP

The exhibit will be divided between the Skelly Marketing Department and the Skelgas Co. display, one-half of the space being given to each. The marketing space will depict the blending set-up and operations throughout the marketing territory. The Skelgas exhibit will show a model kitchen with a complete Skelgas installation, including range, water-heater, refrigeration, lighting fixtures, and several small appliances, all using Skelgas. There will be demonstrations of cooking with Skelgas by the lady attendant. The utilization of Skelly butane will also be shown in this space.

The E. M. Smith Co.
Los Angeles, Calif.

114 and 115 Kansas Building

In attendance

WALTER G. L. SMITH — ED CARTER
PAUL KELTING

The company manufactures the "Grizzly" line of oil field products, and will present an exhibit of these products. The following numbers of the "Grizzly" line are to be featured:

Grizzly full-moulded rotary brake blocks for all

types of brakes and drum diameters. In this connection, the Grizzly brake block band exchange, time, trouble and money saver on brake block installations, will be explained in detail by attendants.

The Grizzly Giant streamline drill pipe protector with its solid one-piece body of tough, resilient rubber, which is tapped into a vice-like grip on the pipe with a tapered locking key.

The steel-armored Grizzly rotary hose, combining flexibility with great strength and toughness, made

in three types—Grizzly Powerflex, tested to 10,000 pounds pressure; Grizzly Red Line Cub, tested to 7,500 pounds pressure, and; Grizzly Cub, tested to 5,000 pounds pressure.

The Grizzly "No-Whip" line saver, produced for the purpose of eliminating needless expense and hazards attending excessive line wear.

Other items to be included are the Grizzly Flexible discharge unit; Grizzly rotary hose couplings, and; Grizzly belting—raw edge, transmission, endless, and conveyor types.

A. O. Smith Corp.
Milwaukee, Wis.

177-178-179-180 Oklahoma Building

In attendance

C. C. JOYS, JR. — B. F. BART
A. E. BUTTS — H. A. BOURNE
TOM CREDEN — KEITH CAMP
CURTIS MEYER — J. DILOT

Exhibit will consist of a decorative background into which are built several items of unusual character and general interest. Included among these items is the latest streamline design of Smith Meter so arranged that it can be operated and its accuracy demonstrated.

Smith Separator Corporation
Tulsa, Okla.

88, 89, 90, 121 and 122 Texas Building

In attendance

R. S. McKEEVER — E. H. ROSS
R. S. STOVER — C. D. PETERSON
LENARD HAUGHTON — J. H. SMYTH
L. A. SKEEHAN — F. P. HAMILTON

A combination vertical separator will be shown operating alternatingly as an ordinary separator with fluid being measured. Also as a separator using the lower or Vacotrap chamber to measure and force fluid to storage received from the separator or upper chamber by gravity.

Standard Type Smith Separator using an auxiliary horizontal Vacotrap to permit separator to function at atmosphere or vacuum, gravitating fluid to auxiliary Vacotrap and by use of residue pressure, force and measure fluid to storage.

These units will feature the company's new heavy-duty oil bath snap acting pilot, three-way valves and measuring equipment.

A departure in design of high-pressure separators will be displayed on the 1,000-pound working pressure A.P.I.-A.S.M.E. code separator, which will be equipped with the company's improved sand type oil valve, and as an added feature, the use of high-pressure gauge glass built into the separator body.

Waters water gauge cocks for boiler use will also be shown.

Jointly, with Fisher Governor Co., their automatic valves, regulators, King Booster regulator, Type 1100 compensating pilot, and Phlneumatic gas-lift pump will be displayed.

A new Homestead valve Type 22-L, has the features of being a double-lift lever plug valve using a lever to remove the plug from the seat, and which can also be used to lock the plug tight in any position placing the plug in the same use as a choke. Easily operated under high pressures without lubrication—lubrication provided.

Barco flexible ball joints.

Chemical flow controller to automatically inject chemical into fluid.

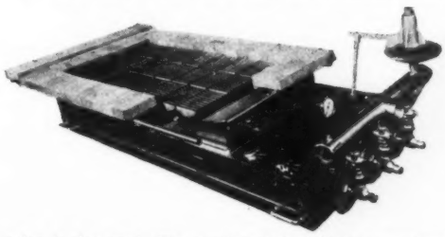
The Sonner Burner Co.
Winfield, Kans.

58 Oklahoma Building, also outside on Oil City Way

In attendance

P. J. SONNER — K. D. GOODWIN
R. L. McCALL — MAX V. STOCKING
S. A. SWOYER

Exhibiting Sonner air-cooled gas burners for oil field boilers. Non-Freeze valves for water tanks and automatic drain valves for inlet lines to water tank. The Non-Freeze valve is for use in water tanks. It shuts the water off inside the tank so the lines cannot freeze. The valve can be used on the inlet water line as well as on the outlet water line when the automatic drain



valve is also used. The combination of these two valves completely eliminates the use of frost boxes. Both valves are patented and equipped with standard replaceable

Courtesy of Worthington Pump and Machinery Corp.

ease in pump assembly

Quick precision adjustment of reciprocating pump bearings and gear shaft, for example . . . By simply peeling the paper-thin laminations from the solid brass Laminum shim. Right at the job . . . in assembly AND service adjustment! No filing, no machining. Write for Laminum sample (.002 or .003 in. laminations).

LAMINATED SHIM CO., INC. 21-54 44th Ave., Long Island City, N. Y.
Cleveland Dallas Detroit Houston Milwaukee Tulsa

Our Products Described in the Composite Catalog 933

LAMINUM
Precision adjustment **SHIMS**

(See our Exhibit . . . Booths 37-38, International Petroleum Exposition)

seats which are stocked in all supply company stores.

The company will exhibit several different sizes of both the LIO and LV models of the Sonner air-cooled burner for oil field and refinery boilers. These burners are stocked in sizes to fit all boilers from 50 to 125 hp. and can be made up for any other special purpose upon request.

The deep slot construction of the Sonner air-cooled burner head permits the lowest possible turn down, without danger of flash back, and the unusually large cooling surface in the burner head prevents the deep slot from overheating. High combustion temperature uniformly distributed over the heating surface permits more rapid and efficient heating transfer. This uniform heat distribution also allows the extremely high overloads to be carried with absolutely no damage to the boiler.

There are no refractories used in the burner itself. Refractory type burners usually have a tendency to overheat the mudring and lower side walls of the boiler, which causes stay bolts to become loose and otherwise shortens the life of the boiler. The high temperature also has a spalling effect on the brick and causes the burner slots to become clogged.

The units are completely automatic with respect to air control and when used with a steam actuated boiler fuel governor requires little or no attention. It requires but a few minutes' work to move the burner from one boiler to another, merely lift out the heads and brick; disconnect the gas line; pull out the chassis and it is ready to move.

South Bend Lathe Works
South Bend, Ind.

184 Oklahoma Building

Exhibiting 1-inch collet lathe. This new 9-inch swing lathe with a 1⅝-inch hole through the spindle, and a 1-inch collet capacity is a back-geared, screw-cutting lathe, with all engine lathe features, and has been developed especially for the manufacturing plant and the tool room. All regular attachments are available. Draw-in collet chuck attachment may be had in the handwheel type and the quick acting lever type; six-tool bed turret and double tool slide adapt the lathe to handling multiple operation manufacturing jobs; telescopic taper attachment permits doing the most precise taper work; electric grinders, chip, pan, collet tray, carriage stop, and milling and keyway cutting attachments are also available.

A two-speed motor drive provides 12 spindle speeds ranging from 50 to 1,400 r.p.m. The Quick Change gear model cuts screw threads from 2 to 112 per inch and the Standard Change gear model cuts threads 4 to 112 per inch. Power longitudinal feeds are .003 inch to .020 inch to .015 inch respectively. Four bed lengths are available: 3-foot, 3½-foot, 4-foot, and 4½-foot.

Southern Malleable Iron Co.
East St. Louis, Ill.

71 Kansas Building

In attendance

COL. C. C. CHAMBERS HERMAN H. BRIEN
MARTIN E. GORMAN

Exhibit will consist of malleable castings of particular interest to the manufacturers of oil field equipment.

South West Box Company
Sand Springs, Okla.

18 Refiners and Marketers Building

In attendance

H. L. WATERSTREET A. S. BEAR
J. H. WINDER

All types of corrugated products, including canned oil shipping cases, etc.

Spang & Company
Butler, Pa.

44, 45, 60, 61 California Building

In attendance

F. J. SPANG L. B. SPANG
C. E. SPANG L. F. PORTER
F. J. RIPPER O. B. PIERCE
E. B. IRVAN and others

Exhibiting the following tools: Spang weldless jars, die forged bits, rope sockets, hollow reamers, collar sockets, slip sockets, wire line knife, alligator grab, casing ripper, trip spear, various packers and Ekin drive head.

The Ekin drive head utilizes a special sub on the drilling string, which takes the place of drive clamps. The head is so constructed as to allow this hammering sub to pass through it when drilling operations are renewed. No wrenches are needed.

Spang Chalfant, Inc.
Pittsburgh, Pa.

219, 220, 231 and 232 Oklahoma Building

In attendance

J. D. HARDCASTLE C. R. BARTON
L. L. BRUNDRED R. M. BURK
A. S. WEAVER O. A. BERGMANN
H. G. TEXTER C. C. BRUSH
W. M. FRAME R. M. SYLVIS

The material to be exhibited will be our latest development of Shrink Thread Drill Pipe and Tool Joints and our Extreme Line Casing.

The Speeder Machinery Corp.
Cedar Rapids, Iowa

Block "P"

In attendance

B. O. EIGHMY T. M. DEAL

This corporation, pioneer manufacturers of full revolving, fully convertible, light weight shovels, will exhibit a SPEEDER Model LS-40 full revolving ⅜-yard convertible shovel. The SPEEDER LS-40 is a light weight shovel, convertible to crane, dragline, trench hoe or any other attachment commonly used with a shovel or dragline. The SPEEDER LS-40 has been outstanding in its field, especially where unusual traveling ability in a shovel is desired because of the fact that it is equipped with genuine "Caterpillar" tractor crawlers and also powered with a "Caterpillar" D-4400 full diesel engine. This manufacturer claims travel speeds upwards to 4 M.P.H. for the LS-40 and states in its advertising that this machine will travel anywhere that it will stand upright.

Sperry-Sun Well Surveying Co.
Philadelphia, Pa.

51 and 52 Scientific and Technical Building

In attendance

G. L. KOTHNY M. T. HIGGS
JOHN P. KLEP

Exhibit will show the SYFO Clinograph, the H-K Inclinometer, the H-K Directional Magnetic Clinograph, both regular and inside, as well as the SURWEL Gyroscopic Clinograph. It will also display several samples of cores which have been oriented by the company's new polarization method.

The Inside H-K Magnetic Clinograph has been perfected since the last petroleum exposition, as has the H-K Inclinometer. The new Inside H-K Directional Magnetic Clinograph, now available to the oil industry, embodies the superior accuracy and ruggedness of its companion, the Regular H-K. This instrument can be used in connection with all types of retractable core barrel. The drill stem is not removed but is raised off bottom about 20 feet, and the instrument lowered or go-deviled through the drill pipe and the core barrel, and record made in the open hole below. The Inside H-K is a great time saver, its operation is simple and safe, is self-checking and produces permanent and accurate photographic records.

The new H-K Photographic Inclinometer, the third member of the H-K family of outstanding well surveying instruments, is for inclination only. It may be run in the drill pipe either on a wire line or go-deviled. The design of the H-K Inclinometer retains the accuracy and ruggedness of the other H-K instruments, and includes the exclusive parallel rod, triple suspension cross hair plumb bob and simple automatic camera. The H-K Inclinometer is simple to operate; it is self-checking, produces permanent and accurate photographic records, easily read directly from the discs.

Spicer Manufacturing Co.
Toledo, Ohio

21 and 22 Refiners and Marketers Building

Standard Asbestos Mfg. & Insulating Co.
Kansas City, Mo.

129 Refiners and Marketers Building

In attendance

W. D. RYDER R. E. RYDER
C. M. SERFLING A. W. BENN
G. W. ISAACSON

Displaying a complete line of high-temperature and low-temperature piping and vessel insulating materials, and corrugated asbestos siding and sheathing materials. A full line of "Walsh" refractories will be shown and a complete display of packings and gaskets. Also a complete line of welding materials, consisting of "Hansen Arc Welders," "Harnischfeger Welding Rods," "Rego Gas Welding Equipment," welders' helmets and supplies. Included will be several new developments in these various lines.

Square D Co.
Milwaukee, Wis.

50 and 51 Refiners and Marketers Building

The Star Drilling Machine Co.
Akron, Ohio

Block Z, directly across from the new cafeteria

In attendance

M. A. MacBEATH J. H. NELSON
GEORGE HEINISH I. E. WILD

Will exhibit two all-steel spudders with self-contained power unit and 100 per cent antifriction bearing equipment, incorporating some new ideas for absorbing drill shock. These spudders also have many highly desirable features which the company has developed.

Stefco Steel Company
Michigan City, Ind.

Outside space E, entrance of Scientific and Technical Building

In attendance

J. A. DRAIN, JR. R. M. SPURLOCK
THELSTON BARNETT L. L. DRESSER
C. C. MUSGROVE AL SWANSON
H. Y. BARNETT FRED FLANDERS

Exhibiting an all-steel trailer for portable field office or laboratory which presents many novel features. The trailer has been designed to withstand the rough

usage of oil field work. By an ingenious use of standard sections, this trailer offers custom built features at a price usually paid for a standard job. It is also possible, through the use of panel construction, to ship this trailer unassembled, with consequent saving in freight charges. The trailer exhibited is of medium size, having living and sleeping accommodations for two men.

There are several Stefco buildings in the exposition grounds, housing the displays of various manufacturers. New this year are buildings wherein will be exhibited the products of the Marmon-Herrington Co. and the Buda Engineering Service.

Stefco has recently developed a unique insulated steel building illustrated herewith. Although in no way interfering with the portable features of Stefco standard sectional construction, this insulation feature opens an entire new field for steel buildings.

St. Louis Cordage Mills
St. Louis, Mo.

123 Kansas Building

In attendance

HAROLD V. PATE E. E. FRIES
KENNETH K. KIRLIN

The company hopes to have one of the most complete exhibits of oil field cordage that will be at the exposition. It also will have on exhibition its AMCO "All-Weather" Best Manila Rope, rotproofed

and weatherproofed, also a good display of its American and Derrick Bull Ropes, American Catlines, Trojan Manila Crackers, and a general assortment of oil field cordage. There will appear also at the head of the booth an enlarged photograph symbolic of the beginning and also brief information depicting somewhat the developments of the petroleum industry.

St. Louis Steel Casting Co.
St. Louis, Mo.

35 and 36 California Building

Sullivan Machinery Co.
Michigan City, Ind.

1 Beeville Lane

In attendance

J. W. HADDOCK — J. B. MARTIN
P. D. CORNELIUS — H. C. JOHANSEN
H. H. VANDERZEE — WADE WINEMAN
J. W. KENDRICK — C. L. VAN DA GRIFF
J. A. NOYES — H. H. HOLLENSHEAD
J. E. M. SCHULTZ — WALTER A. KREVIS
PAUL G. SHARP — R. B. THOMAS
G. E. SMEDBERG

Will exhibit a complete working model of a Sullivan pumphead including derrick hanging equipment, pumphead, volume tanks, heater and compressor. Sketches and large scale photos will be used to tell of the advantages of Sullivan pumpheads; will show how the giant shock absorbing action materially reduces sucker-rod breakage; how this pumphead is adaptable to installation on low, swampy, ground, flood plains and ocean shore; how the variable speed of stroke, length of stroke and independent control of up and down stroke speed allows most efficient pumping during the entire life of the well; how they may be operated by compressed air or gas; how the unsanding valve feature permits unsanding in many cases without pulling the well; how single or multiple installation can be used.

The exhibit will show large action views of the company's complete line of motorized shot hole, structure testing, shallow production and repressuring drills, including the exclusive Sullivan centralized hydraulic control valve and the automatic chuck used on its structure testing drills.

This company will also exhibit the improved String-A-Lite modern derrick, lighting system in miniature with full size samples of String-A-Lite safety lighting cord.

Motion pictures will also be used to tell the story of Sullivan pumphead by means of actual field views.

Sun Oil Company
Tulsa, Okla.

52 and 53 Refiners and Marketers Building

In attendance

J. EDGAR PEW — E. J. GORMAN
T. C. HALLED — M. D. LEAHY
G. HILLIGOSS — R. A. SEARLE

Booths will be arranged with comfortable furniture as lounge or resting place.

Surface Equipment Company, Inc.
Tulsa, Okla.

Block A

In attendance

WADE H. JAMES, JR.

Displaying drop forge Safety "C" and disconnecting links, drop forge combination clamps, cast steel friction clamps and disconnecting blocks, roller type hook-off, roller type hold-up and hold-down, the new SECO belt tightener and T-Bar hook-offs, the new improved roller rod carriers, also portable hexagon and welded cooling towers.

Synthane Corp.
Oaks, Pa.

53 Scientific and Technical Building

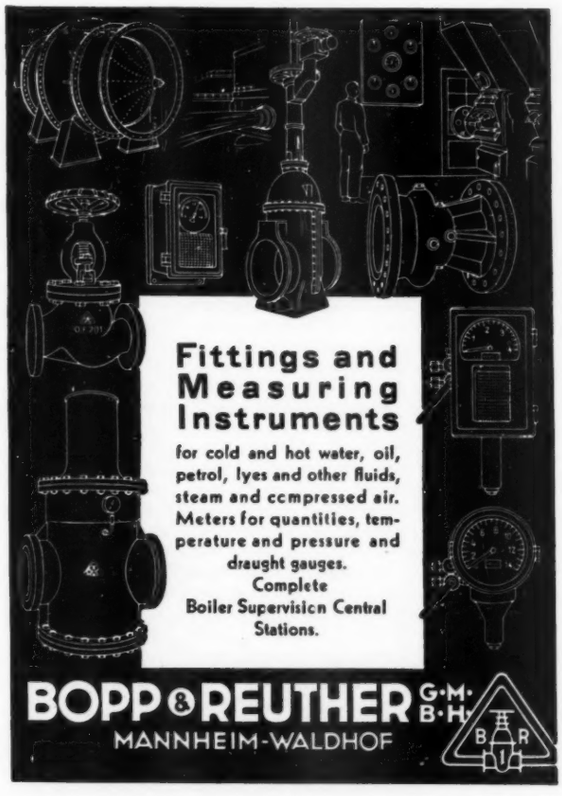
In attendance

ERNEST BERNARD — W. E. GLASS
F. C. McCAMLY — J. B. RITTENHOUSE

The exhibition will consist of specimens of Risonite explosive containers, both for nitroglycerin and for time bomb handling.

There will be included a routine sequence of the development of the product from its raw stages through the various steps in its manufacturing process up to the finished basic sheet and tube forms.

Of recent years phenolic resinoid non-metallic materials have become increasingly important in the petroleum industry for use in connection with valves and piston rings. Specimens of these various applications of the product will be on display, together with ample specimens of the basic forms of sheets, rods and tubes.


Fittings and Measuring Instruments
for cold and hot water, oil, petrol, lyes and other fluids, steam and compressed air. Meters for quantities, temperature and pressure and draught gauges.
Complete Boiler Supervision Central Stations.
BOPP & REUTHER
G·M·B·H
MANNHEIM-WALDHOF

Please ask for prospectus 62 Oil and Gas

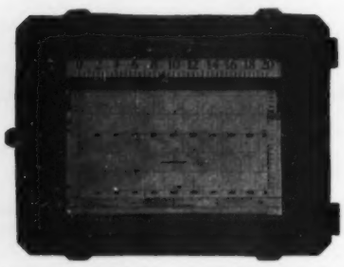
Rely on Buckeye DITCHERS
The most important pipelines the world over are laid in trenches dug by Buckeye Ditchers.
MODEL 12. .The Pipeliner
For trench from 14½" to 24" wide, 5½' deep. Engineered for real pipeline service. Lots of speed and power, and built to stand up under hard digging.
MODEL 49. . .The Mainliner
BIG trench is easy with this Buckeye. Digs to 43" wide, 8' deep. Transmission drive for all operations fully enclosed. Ruggedness and power keep costs low.
WRITE FOR COMPLETE INFORMATION
Originators of the Wheel Type Ditcher.
THE BUCKEYE TRACTION DITCHER COMPANY
FINDLAY, OHIO

C. J. Taglialue Mfg. Co.
Brooklyn, N. Y.

24-25 Scientific and Technical Building

In attendance

E. D. WACKER A. G. KOENIG
L. VAN BLERKOM



Super speed Celectray recording pyrometer

This company, manufacturer of indicating, recording and controlling instruments for temperature, pressure, level, flow, etc., will attractively display in a modern silver and blue setting the latest TAG Instrument developments.

A radically new Superspeed CELECTRAY recording pyrometer that is designed to expose heretofore uncharted, but vital, temperature changes, will be operating in the TAG display showing an enlarged picture of an oil refinery. Each time the instrument records a temperature, a colored light will flash at the point where the temperature is taken, dramatically demonstrating how six different accurate temperature records can be made in a short period of 30 seconds!

Another new CELECTRAY pyrometer of the indicating type will be shown for the first time. It was developed to meet an economical means for obtaining throttling control of electric furnaces. This remarkable instrument employs the CELECTRAY principle of photo-electric detection of the position of a beam of light reflected from a mirror galvanometer toward a reciprocating control edge. It has no dead zone and holds a steady temperature without oscillation.

"From Raw Material to Finished Product" is another of the interesting features prominently displayed in the TAG booth. Here will be found every step in the making of TAG laboratory thermometers and hydrometers from the cane glass to a complete variety of finished instruments.

In addition, a new line of pressure spring instruments with many advanced features of construction will be introduced to the oil industry. In addition to their mechanical excellence, the new and pleasingly proportioned rectangular case will give a modern touch to the instrument panel board.

There will be a new and unique TAG Float Type Throttling Level Controller, a complete line of TAG oil testing instruments, TAG Magnetic Clutch Flow Instruments and TAG Industrial Thermometers.

Technical Oil Tool Corp., Ltd.
Los Angeles, Calif.

251 Oklahoma Building

In attendance

J. V. ROBINSON E. C. McCONNELL

The manufacturers of the Totco drift recorder will exhibit improved types of container bodies for different methods of operation, together with the Totco instru-

ment. The improved container bodies are made from a special alloy steel specially rolled. This steel has a very high tensile strength and resistance to impact. Thickness of wall, straightness of tube and eccentricity are held to an extremely close tolerance. Container tubes and all parts are hard chrome-plated to resist rust and corrosion and a unique and effective patented sealing device is employed which withstands, without any leakage, the hydrostatic pressures of the deepest wells. All machine work on the container bodies is done under gauge control, as is the production of every individual part, because of the very close tolerances needed. A number of interchangeable parts for various combinations for the two sizes of container bodies have been added to the Totco line to enable operators to use any one of the five different methods employed to take records.

Tank Control
Tulsa, Okla.

17 Kansas Building

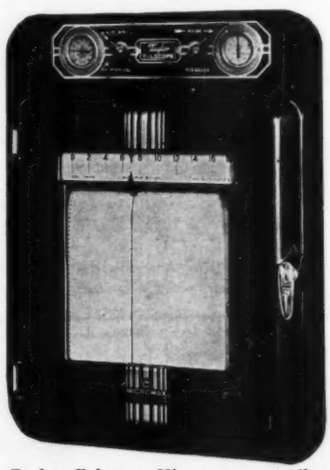
Taylor Instrument Companies
Rochester, N. Y.

32-33-34 Scientific and Technical Building

In attendance

A. J. FLEIG R. E. CLARRIDGE
E. H. TRIPHAUS L. G. MARSH
D. J. CONDIT H. A. BROWN

Exhibit will show a complete line of Taylor temperature, pressure, flow and liquid level instruments. Displayed in the booth will be the Taylor Fulscope indicating and recording controllers, Motosteel valve and Valv-Precisor, Dubl-Response control unit, Binoc tubing industrial thermometers, Permax hydrometer, flow meters and liquid level recorders. The booth will be in the nature of a colorful and modern display, with



Taylor Fulscope Micromax controller

the center of attraction given to the Taylor Fulscope Micromax controller, which is being shown for the first time, and which has several improvements of importance to the oil man.

The Texas Company
Houston, Tex.

31 and 32 Refiners and Marketers Building

In attendance

J. W. WALLACE J. L. BRIGANCE
C. R. ARNOTT CAMPBELL CHAPMAN
L. M. GREEN J. M. DOSS
W. B. SANDERSON

Booth of modernistic design displaying full line of Texaco products.

Texasteel Manufacturing Co.
Fort Worth, Tex.

132 Kansas Building

In attendance

A. J. ARMSTRONG J. W. EMERY
GEORGE W. ARMSTRONG, JR. G. I. CALVERT
PHIL H. EDWARDS FLOYD L. SWINDELL

Exhibit features problems and manufacturing processes in connection with sucker rod production. Primarily a metallurgical exhibit it will also present samples of steel castings for the oil fields manufactured by the Texas Steel Co. of Fort Worth, the parent company.

The Texas Employers' Insurance Association
Dallas, Tex.

46 Texas Building

In attendance

R. C. LEDBETTER W. T. CAMPBELL
C. W. CRAWLEY S. F. YANCEY

Exhibit will feature safety as it affects compensation policyholders in the state of Texas. This exhibit will be a presentation by automatic picture slides of actual working conditions of oil well drilling, illustrating both good and bad practices.

There will also be a graphic presentation of the rewards or penalties accruing by reason of safe practices or their neglect, as they affect the cost of insurance under the experience rating plan.

The Toledo Pipe Threading Machine Co.
Toledo, Ohio

112-113 Kansas Building

In attendance

W. R. VOSPER C. A. WAGNER
E. H. RECKER R. W. WARNKE

Hand operated pipe threading and cutting tools and power pipe machines, showing the "TOLEDO" No. 1-2-4 high speed, high production 4-inch machine; the "TOLEDO" No. 999 small portable 2-inch machine; and "TOLEDO" power drives with the geared threading and cutting tools.

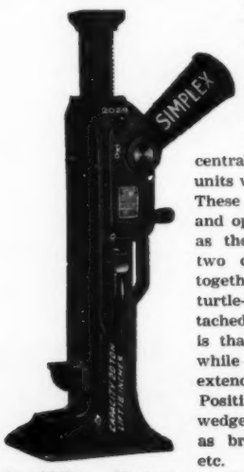
Templeton, Kenly & Co.
Chicago, Ill.

42 and 43 Texas Building

In attendance

J. B. TEMPLETON CHARLES NEHER

Simplex jacks for oil field service will be displayed. Of special interest to oil men will be the new Simplex No. 434 combination double chain pull rod jack and belt stretcher and the improved Simplex No. 436 heavy duty double chain pull rod jack.



No. 2029 — 20-ton single acting automatic raising and lowering riggers' jack

These jacks are proving extremely popular because they are the only pull rod jacks that pull up broken rods on central power or back-crank units without kinking the rods. These jacks are easily carried and operated by one man and, as the equalized pull on the two chains brings the rods together in a straight line, the turtle-back is also easily attached. An important feature is that the slack can be held while the jack "rack bar" is extended for additional travel. Positive holding slips and chain wedges eliminate hazards such as bruised knees, kick-backs, etc.

The belt stretcher clamps, available with the No. 434 only, are attached to jack in the slip openings and will handle belts up to 18 inches wide.

Occupying a prominent spot in the display will be the new Simplex No. 310-A 15-ton emergency jack. This jack is the 1938 model of the famous Simplex No. 310, universally used for oil field work. The new model not only lifts 37 per cent easier, but embodies many other improvements such as a greater base area, more convenient carrying handles, larger toe lift, greater overload capacity, foot-operated base lock, etc.

The display will also include the Simplex general purpose oil field jacks in capacities from 5 to 35 tons, the Simplex extra heavy duty geared type riggers' jacks, ball bearing screw jacks, multi-ball bearing journal jacks, reel jacks, pole pulling and pole straightening jacks, push and pull jack maintenance seats, truck jacks, etc.

Thornhill-Craver Company, Inc.
Houston, Tex.

86 and 87 Kansas Building

In attendance

HOMER THORNHILL R. S. WARREN
KENNETH CRAVER TOM W. WALKER
CHARLIE THORNHILL H. L. DUNCAN

This company will exhibit its complete line of Unibolt specialties at the International Petroleum Exposition. Included in the display, in addition to the high pressure steel, medium pressure malleable, and "big inch" steel couplings, will be the following new products:

High pressure cast steel tees and crosses to which has been adapted the Unibolt coupling principle. These

new fittings are designed to speed up installation, provide a safer connection by eliminating threaded joints and the conventional bull plug, and to facilitate changing of flow beans.

A cast steel ball joint employing the Unibolt coupling principle, which compresses packing on both sides of the ball to effect a leak-proof seal by simply making up on one bolt.

An adjustable type choke which is designed to assure centering of the needle point in the orifice, and which may be converted to a positive type by simply breaking out the Unibolt coupling between the yoke assembly and choke body again proves advantageous in that it saves considerable time over the flanged type connection when changing flow beans and eliminates a threaded connection.

A high pressure cast alloy steel return bend, with Unibolt couplings replacing the conventional threaded ends, will be of particular interest to the refinery engineers.

Thompson Pump Co.
Okmulgee, Okla.

48 California Building

In attendance

R. D. THOMPSON — FRANK WILCOM
JAMES F. STEELY — L. R. HERMAN
VAUGHN TWIBELL — H. A. LITTLEJOHN
ROBERT S. HOLMES

New pull type self-aligning sectional plunger oil well insert pump. The working barrel is stationary with the hold down on either top or bottom. The self-aligning alloy plungers are connected with hollow plunger bodies with one-eighth inch clearance between to allow universal action, keeping plungers in straight alignment, giving them freedom from friction and assuring full working stroke at all times. The plunger bodies are connected to a hollow pumping tube allowing the fluid to pass through and flush the sand and sediment well above the plungers assuring much longer life to the pump.

This pump is made in two types, either all metal or combination cup and plunger pump.

This pump is being exhibited for the first time but the exhibit will also show other type pumps and oil well specialties.

The Timken Roller Bearing Co.
Canton, Ohio

72 and 73 Texas Building, and 10, 11 and 12 Refiners and Marketers Building

In attendance

Representing the Bearing Company:

W. B. MOORE — S. M. WECKSTEIN
H. W. TRUMP — S. T. SALVAGE
W. F. ANDERSON — H. D. ROBB
P. J. REEVES

Representing the Steel and Tube Division:

H. H. TIMKEN, JR. — S. D. WILLIAMS
D. T. MARVEL — MARTIN FLEISCHMANN
W. E. TAGGERT — C. H. McCOLLAM

The Timken Roller Bearing Co. will have two displays, one devoted to tapered roller bearings and the other to the steels produced by its Steel and Tube Division. Typical oil field bearing applications will be shown on illuminated panels and these in turn will be tied into actual bearings such as are used in the operating equipment so the user of the equipment can see how sturdy the bearings are and how easily they operate as well as where and how they are used. Supplementing this display will be special literature describing the use of Timken bearings in oil field equipment. The bearing display will be in Spaces 72 and 73, Texas Building.

Samples of the various types of steel and seamless tubing used in oil production and refining will be on display in 10, 11 and 12, Refiners and Marketers Building, together with literature describing the properties of the various steels as related to the problems encountered in refining. Specialists will be on hand at all times to discuss high temperature and other steel problems.

Tokheim Company
Cedar Rapids, Iowa

43 and 44 Kansas Building

In attendance

J. J. TOKHEIM — GEORGE TOKHEIM
SAM SMITH

Exhibiting flame arresters with combined breather vents, and Multiple safety vacuum valves, in pipe sizes from 2 to 10 inches, Underwriters' approved.

Tank gauges, pressure tight, for any size and style tank, vertical, horizontal, or underground, accurate to a hair-line.

Tankcar unloader, a siphon process with vapor lock eliminator.

A vacuum tank cleaner that removes water and sediments from storage tanks without removing or wasting any gasoline.

A vapor lock eliminator for swing line tankcar unloader that makes possible unloading high-test gasoline in hot weather without delay.

Tnemec Company, Inc.
Kansas City, Mo.

85 Scientific and Technical Building

In attendance

J. B. RAY — J. E. DAVIS
A. J. HUNT — F. L. SWEET
M. C. GREEN — A. C. BEAN
GEORGE FLANDERS — R. J. EICHE

Products to be exhibited: Actual time-tested exhibits from oil fields, showing how Tnemec gives protection under field operating conditions: Tnemecized tubing, Tnemecized sucker-rods, Tnemecized pipe line, Tnemecized tanks.

Tnemecized means equipment treated according to Tnemec specifications. Tubing thus treated, will give three times as long service as can be obtained from untreated tubing. The same is true with sucker-rods.

Trackson Company
Milwaukee, Wis.

Block V, Corner Drumright Avenue and Cushing Lane

In attendance

W. H. STIEMKE — L. E. DAUER
I. W. KUNERT — L. M. CLARK
L. C. FRANK — N. M. ERDAHL

The latest models of Trackson pipe layers will be displayed and will be seen in operation. In addition to this equipment, the new Anglefiller will also be on display. This is a comparatively recent development

Model PR-30 pipe layer and anglefiller

and is used in connection with the company's pipe-laying machines.

Another new unit which will be displayed for the first time is the Trackson backfiller. This machine will include all the features of a pipe layer together with that of a boom-type backfiller. It can be converted quickly from one to the other, and this is the first time a machine has ever been built which has all the advantages and high-lifting capacities of a regular pipe boom, as well as doing fast and efficient backfilling.

Triangle Blue Print Co.
Tulsa, Okla.

54 Scientific Building

In attendance

W. L. REYNOLDS — L. C. BURCHFIELD
L. C. HIGBEE

Displaying Spencer low-power binocular microscopes and W. & L. E. Gurley Co. line of surveying instruments.

Tretolite Company
Dallas, Tex.

69 and 70 Scientific and Technical Building

In attendance

GORDON S. NEES — M. J. MULLALLY
KENNETH R. FARR — F. L. KELLEY
C. G. McCALEB — O. F. DUNAFON
HOWARD LAND — L. C. CAMBLIN
JOE KEEVIL — C. G. JAMES
J. L. KEEL, JR. — IRA S. BOYDSTUN
R. A. WATERS — W. N. THURSTON
F. E. LOVE — WALTER CURRAN
A. D. WATSON — C. W. FORNES
R. F. SCIVALLY — ALMOND GATES
MONT LAND — C. C. ROGERS, JR.

The walls of the booth are finished in black and red, with red and black metallic furniture. A miniature chemical treating plant is to be displayed. The rear of the booth will display the trade name "Tretolite."

Trimont Manufacturing Co., Inc.
Roxbury, (Boston) Mass.

115 Oklahoma Building

In attendance

JAMES F. CORCORAN

The main item of the Trimo tool line featured will be the new "Trimo-Alloy" pipe wrench—the only tool of its type on the market today made entirely of drop forged chrome molybdenum, manganese and nickel steels— offering more strength, safety and service than any similar tool ever before put on the market. In addition, a new treatment which enables us to give Trimo jaw teeth an almost diamond hardness—yet keep its tough, long wearing qualities—will be one of the features to be brought out, and the exhibit will also stress the "Written Guarantee" now wired to the handle of every genuine "Trimo-Alloy" pipe wrench in the form of a tag.

In addition to this the company is also featuring its line of Trimo pipe cutters, vises, monkey wrenches, chain wrenches and Tricrome cutter wheels.

Trinity Portland Cement Co.
Dallas, Tex.

124 and 125 Kansas Building

In attendance

CEDRIC WILLSON — JACK BARNES
HARRY J. SESSUMS

For production men, Trinity will show its complete line of oil well cements covering all requirements from shallow production to the deepest, where bottom-hole temperatures are well over 200 degrees and pressures are extreme. There will be petroleum engineers and cement technicians in attendance at all times to discuss oil well cementing requirements, particularly in connection with unusual and difficult jobs.

Of interest to everyone will be a complete working model of a deep well drilling rig. It is on an inch to the foot scale and includes practical steam boilers, engines, pumps, drawworks, electric light generator, kelly, string of drill pipe, slush pumps, etc., with a 122-foot (10 feet 2 inches) derrick.

This rig is used to demonstrate a model deep well cementing job with a practical cementing truck built to the same scale as the rig. As far as is known, this is the most detailed and complete working model of a steam rig which has been built.

Tube-Turns, Inc.
Louisville, Ky.

132 Texas Building

In attendance

R. E. FRITSCH — J. G. SEILER
W. B. WHENTHOFF

Exhibiting complete line of fittings for pipe welding and forged steel flanges. Included will be 45-degree, 90-degree and 180-degree TUBE TURNS; TUBE-TURN tees, reducers, heads, Van Stone welding nipples, shaped welding nipples and forged steel flanges of all series, sizes and types.

The Twin Disc Clutch Co.
Racine, Wis.

252 and 253 Oklahoma Building

In attendance

G. M. GUILBERT — J. B. JENKINS

As a manufacturer of clutches, power take-off units and gear reduction units, Twin Disc equipment is used extensively in the oil field. The company will exhibit several different types of clutches and power

take-offs. The Model E clutch line will be shown, which is available in single- or two-plate assemblies ranging from 14 inches to 42 inches in diameter.

Two numbers of standard power take-off units—X-8246 and X-8249—will be shown. This line of equipment is applicable to industrial engines and is built with clutches ranging in size from single plate 6½ inches to double plate 18 inches.

The company will also exhibit several numbers from its line of CC clutches and stub shaft mounted clutches. For the first time at an oil show it will exhibit a reverse and reduction gear unit, Model MG-100. Twin Disc reverse and reduction gears are built in two sizes: (1) Model MG-40 to give 100 per cent reverse for engines ranging from 40 horsepower at 1,000 r.p.m. to 50 horsepower at 1,500 r.p.m.; (2) Model MG-100 is designed for engines rated from 100 horsepower at 1,200 r.p.m. to 115 horsepower at 1,500 r.p.m.

Tulsa Rubber Products Company
Tulsa, Okla.

226 and 227 Oklahoma Building

B. F. Goodrich Co.
Akron, Ohio
In attendance

E. T. ROHRKASTE A. L. LEDBETTER

Special representative from B. F. Goodrich Rubber Co., Akron, Ohio.

Exhibit will include mechanical rubber goods such as transmission belting; V-belt drives; rotary hose; all types of oil, gasoline, water hose; rubber footwear for the refining industry; and many other mechanical rubber items. A demonstration of splicing transmission belting, using the Goodrich patented Ply-lock splice method. Complete vulcanizing equipment will be installed in the booth for the purpose of vulcanizing splices in transmission belts.

Tyson Roller Bearing Corp.
Massillon, Ohio

26 California Building

In attendance

GEORGE C. McMULLEN H. J. DEAL

Exhibit will cover various sizes of TYSON cageless tapered roller bearings used in equipment manufactured for the oil industry.

The TRYSON bearing departs only from the proven principles of the cage type bearing in that it eliminates the cage. This permits a full complement of tapered rolls that develop an average of 30 to 35 per cent more capacity than is obtainable with the same size cage type bearing.

The advantages may be briefly summarized as greater capacity, increased rigidity and longer bearing life. These claims have been established by the performance of some 750,000 bearings now in service in all types of industrial, heavy duty, applications.

Union Carbide and Carbon Corporation
New York

6 to 9 California Building

The Linde Air Products Co.
New York
6 to 9 California Building

The Linde Air Products Co., in conjunction with Haynes Stellite Co. and National Carbon Co., Inc., also units of Union Carbide & Carbon Corp., will occupy exhibit areas 6, 7, 8 and 9 in the California Building.

The Linde Air Products Co. will feature multiflame Lindewelding, the welding of oil well casings, portable cutting machines for preparing pipe and plate, and other oxyacetylene applications in the oil industry.

Haynes Stellite Co.
Unit of Union Carbide and Carbon Corp.
New York
6-7-8-9 California Building
In attendance

W. S. TROMLEY C. W. METZGER
E. E. LeVAN

Will display alloys for resistance to abrasion and corrosion. Haynes Stellite Co., together with its associates, the Linde Air Products Co. and National Carbon Co., Inc., units of the Union Carbide & Carbon Corp., will occupy exhibit areas 6, 7, 8, and 9 California Building.

The Haynes Stellite Co. display will emphasize the wide variety of oil field applications for the hard-setting and hard-facing materials—Haystellite inserts, Hayestellite composite rod, Tube Hayestellite, Haynes Stellite welding rod, and Hascrome, Hayestellite cast tungsten carbide products, well-known in connection with their usefulness for protecting the cutting and reaming edges of oil well drilling bits, and the methods of using them to best advantage, will be featured.

Hastelloy alloys, the nickel-base alloys for refinery equipment handling strong mineral acids, will also be shown. These alloys have been especially developed for resistance to the action of strong chemical reagents. Pump and valve parts, piping, and containers fabricated from these acid-resistant alloys will be on display.

The Union Chain & Manufacturing Co.
Sandusky, Ohio

36, 37 and 38 California Building

In attendance

E. F. EMMONS PERRY CATRON
E. J. BUBER J. F. SMITH
W. R. DAVIS J. H. DRAPIER

Exhibiting Union "HB" Class Oilwell chains.

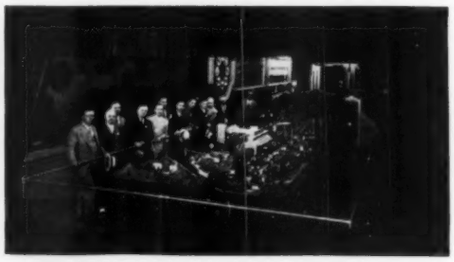
Union Wire Rope Corp.
Kansas City, Mo.

80, 81, 82, 129, 130, 131 Texas Building

In attendance

M. G. ENSINGER R. H. BARTLETT
L. G. SCHRAUB H. R. GRUBER
J. H. HATCH H. R. CUTLIP
J. A. UNDERCOFLER L. P. NIXON

The exhibit will be a representation of the wire rope industry in miniature. The exhibit's operation



will be entirely automatic, two trains contacting switches and stops to control their own movements and all loading and unloading operations, through semaphores, switches, gates, etc. Steel rods are picked up at the steel mill, and delivered to the wire rope plant, and the finished reels of wire rope are then loaded and delivered to the oil, mining and logging industries. The elaborate exhibit was conceived and built by the Union Wire Rope Corp.'s mechanical staff, under the direction of M. B. Hansell, chief electrician.

United American Bosch Corp.
Springfield, Mass.

62 and 63 California Building

United States Electrical Tool Co.
Cincinnati, Ohio

181 and 182 Oklahoma Building

United States Steel Corporation
Pittsburgh, Pa.

143 to 150 Oklahoma Building

In attendance

Representing American Steel & Wire Co.:
JOHN MAY P. T. COONS
C. F. WILEY H. R. KLEIN
S. METCALFE DON RICE
C. L. RICHARDSON T. A. GOGGIN
W. P. HOWELL R. D. BURRIS
J. V. McGINITY E. T. EGGERS
R. S. HORNER W. H. CORDES

Representing Carnegie Illinois Steel Corp.:
PAUL VOIGHT KARL LUGER
JOHN EWING J. S. SCHROEDER
ROBERT KORSAN, JR. F. E. BYNUM
P. F. VANDER LIPPE

Representing Scully Steel Products Co.:
WM. C. STRAND

Representing Cyclone Fence Co.:
L. E. KING J. DENTON
A. M. EATON

Representing United States Steel Corp. of Delaware:
M. L. NEISON

United States Steel Corp. subsidiaries will present an informative and interesting exhibit. Central feature of the display will be a 14-foot diorama showing a modern oil field with typical drilling operations in progress. At the front of this diorama the spectators will find push buttons which upon operation will light certain sections of the diorama scene and bring into display in the background information as to what US products enter into the oil field operations and how these products are used. Emphasis will be placed upon USS copper steel and USS Cor-Ten sheets for tanks and USS galvanized sheets for roofing and siding, USS Amerclad cords and cables for electrical work, USS American Tiger Brand wire lines, USS Cyclone property protection fence, Unaflo oil well cement, and other USS products used in the oil industry.

In front of this diorama on a moving belt will be placed a product parade, which will illustrate the progress from the old Drake well up to the modern rotary rig of 1938. This will be accompanied by a continuous message telling the part that steel has played in the development of drilling and refining processes.

Supplementing the central feature will be panel displays showing the advantages and uses of stainless and alloy steels in the oil industry. Also to be presented are special displays on roofing and siding, fencing, cement, wire ropes and cables, and other USS products.

United States Steel Corp. subsidiaries to be represented in this display are American Steel & Wire Co., Carnegie-Illinois Steel Corp., Columbia Steel Co., Cyclone Fence Co., Scully Steel Products Co., Tennessee Coal, Iron & Railroad Co., Universal Atlas Cement Co.

United Supply & Manufacturing Co.
Tulsa, Okla.

107, 108, 109 and 110 Kansas Building

In attendance

H. B. GUTELIUS F. P. THIEMAN
C. J. HALLORAN L. E. WILEY
H. W. DENTON G. H. SCHWENKER

Exhibiting Titusville Iron Works Co. engines; A. Leschen & Sons wire rope; New Way air cooled engines; Lovejoy couplings; and Luber-Finer oil filters.

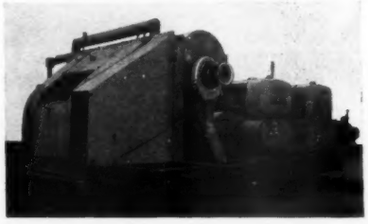
Universal Engineering Co., Ltd.
Los Angeles, Calif.

189 and 190 Oklahoma Building

Unit Rig & Equipment Co.
Tulsa, Okla.

Adjoining Hall of Science Building

The popular demand for the past two years for portable rotary unitized mechanical drilling rigs has brought about many designs. One of the newest is



manufactured by the Unit Rig & Equipment Co. Model U-10 Unit Rig, powered with two Caterpillar diesel engines, and recommended by the manufacturers for 5,000-foot drilling operations. It is a completely enclosed unit, unusually compact, and its construction embodies a great many new engineering applications, such as "flexible speed control," which is handled with one lever. The chain drive transmission system is entirely new and provides several speeds, any one of which is instantly available for the driller. The entire unit is so constructed that it can be moved intact as one load; however, it may be separated into sections for export shipment, or for other purposes. There are several of these units operating in the Mid-Continent and Illinois fields with successful performance records behind them.

Another new Unit Rig model, known as Model U-10, is powered with only one Caterpillar diesel engine. This particular unit is recommended for 2,000- or 3,000-foot drilling operations.

This illustration shows the company's Model U-12 reverse clutch assembled with a conventional drawworks of a well known make and size. Attention is called to the fact that the Unit Rig automatic cathead is installed on this drawworks, which has been used with complete success.

During the last few years and during which time so many high speed hoisting units have been offered to the trade, one important problem has been solved

by the Unit Rig & Equipment Co., in the design of their automatic cathead.

The Unit Rig automatic cathead is safe, simple, and fool-proof. It is the first of this type to be successfully reduced to actual field use. There are only two working parts, rotor and jerkline. It engages, breaks the hardest joints smoothly, and with no shock. Parts that are subject to wear are heat-treated alloy inserts, and are readily replaceable.

Because of its compactness and small overhang it is very desirable for the new high-speed drawworks, and conventional or standard drawworks, as well as many service winches now in use. This automatic cathead will also be shown and demonstrated at the International Petroleum Exposition.

The Vapor Recovery Systems Co.
Compton, Calif.

80-81 Oklahoma Building

In attendance

FRANK V. LONG FRANK M. HOLLOWAY
H. O. JOHANSON T. E. WARD

Working models of Varec conservation vent valves with hyperbolic pallets, flame arresters and telescopic banks, free vent valves, liquid seal safety vent valves, automatic tank gauges for all purposes, vapor recovery regulators, gauge and thief hole covers, roof manheads, safety tank winches, cable sheave brackets, swing joints, tank shell nozzles and marine valves.

Victaulic Company of America
New York City

85 Texas Building

In attendance

R. W. ENGLISH, vice president,
and Hanlon-Waters staff

Exhibiting the full line of Victaulic pipe couplings for pipe diameters ¾-inch through 60 inches. Couplings will be shown in both malleable iron and forged steel types as designed to the requirements of the individual branches of the entire petroleum industry. Victaulic fittings such as elbows, tees, etc., are also on display.

A convincing demonstration of the absolute leak-tightness of Victaulic couplings will be made by continuous operation of a motor-driven pipe flexing model, containing a sealed pressure of 50 pounds compressed air and the entire unit submerged and operated under water.

Viking Pump Co.
Cedar Falls, Iowa

7 Refiners and Marketers Building

Visco Products Co., Inc.
Houston, Tex.

83 Kansas Building

In attendance

F. A. KROLL DR. W. H. FITZPATRICK
J. R. MOECHEL C. F. SPANGLER
F. H. THORNE

Visco oil treating chemicals are featured in the exhibit. These produces were introduced to the oil trade in 1931 after several years of research and actual field experiments directed to the development of an entirely new type of treating chemical for the breaking and resolution of oil field emulsions, commonly referred to as "B.S." oils in the field production of petroleum. Visco oil treating chemicals were the first departure from the soaps, water-softeners, and sulfuric acid treated fatty oils then in general use for this purpose, and have received wide and enthusiastic acceptance by oil producers. Instead of being compounded by mixing various substances in an effort to produce effective reagents, the active principle in each Visco formula is a complex synthetic chemical especially made in a modern plant under a system of rigid chemical control. Visco Products Co., Inc., has its own especially trained sales, service, and technical organizations which cooperate with users of their products to keep their oil treating costs down, insure maximum results, and prevent waste, tank bottoms, etc.

Vortox Manufacturing Co.
Claremont, Calif.

3 and 256 Oklahoma Building

In attendance

C. C. SOWERBY JAMES M. JUDY
E. A. STRATMAN

Will display one of the largest Vortox air cleaners, which will be 45 inches in diameter and about 6 feet tall. Pictures in the booth will show various types of cleaners available for all kinds of engines used in the oil country. A number of these large air cleaners installed on natural gas and diesel engines will be operating in the various exhibits. The fact that Vortox air cleaners will be installed on some of these engines and that visitors may see the cleaners in operation, will doubtless be of great interest.

W-K-M Company
Houston, Tex.

203-209 and 242-248 Oklahoma Building

In attendance

L. O. KOEN H. B. COOKSTON
W. C. MORGAN C. A. MORGAN
E. L. MacBLAIN G. A. CLARKE
W. H. EASON A. T. DONNELLY
W. A. HAMMANN
F. M. BLACK, of W-K-M Company
AL PELTZER, Merco Centrifugal Co.
JOHN H. ALLEN and WILLIAM BOLL,
Everlasting Valve Co.
J. D. CUMMINGS and E. L. ROLFS,
Crutcher-Rolfs-Cummings

Exhibiting the following equipment: The W-K-M through-conduit lubricated gate valves, rotary slips, tubing slips and spider, brake band service, bottom-hole choke, Hauser round kelly drive, rod hanger, mud screen, casing centralizer, W-K-M-Wells piston, eccentric drawworks brake, pipe cleaning machine, Merco centrifugal separator, and Continental water softener.

Wackman Welded Ware Company
North Kansas City, Mo.

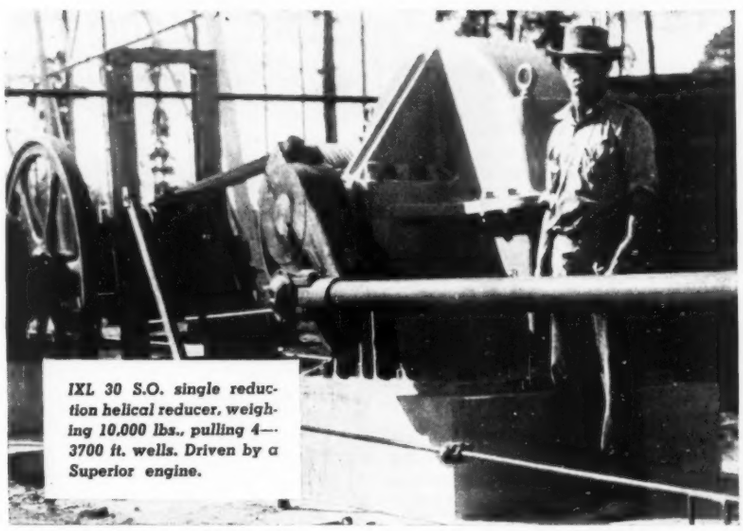
42 Refiners and Marketers Building

In attendance

L. F. McKAY W. E. BOTZ
W. R. FERRIS

Exhibit will comprise a simple assortment of steel barrels and drums for the petroleum, paint, chemical and food industries.

IXL Walks Away with a Tough Job!



IXL 30 S.O. single reduction helical reducer, weighing 10,000 lbs., pulling 4—3700 ft. wells. Driven by a Superior engine.

GRINDING — wrenching shock loads. Strains and stresses — hour after hour — day after day. That's the punishment oil field reducers have to take. That's why they must be tough and sturdy — like IXL helical gear units. You can always *depend* on them.

IXL single and double reduction oil field pumping reducers were engineered especially for their job. They are built by an organization with unsurpassed gearing experience (77 years), engineering ability second to none, and incomparable plant facilities.

Don't take unnecessary risks — choose equipment that has proved its superiority in the severest kind of test — oil field service. That means you'll choose IXL and profit by your choice!

IXL single reduction unit

Ask for Bulletin No. 403. It will help you select the proper drive for your particular job. No obligation. Write today.

FOOTE BROS.
GEAR & MACHINE CORPORATION
5306 S. Western Boulevard - Chicago

Direct Factory Representatives

MAX E. LANDRY
204 Terminal Bldg., Oklahoma City,
533 Mayo Bldg., Tulsa, Okla.

T. C. GRAHAM, Box 596, Overton, Texas
GEORGE J. FIX CO., 2413 Commerce St., Dallas, Texas
J. H. TURNER, Odessa, Texas

Waco Garment Manufacturing Co.
Tulsa, Okla.

17 Marketers and Refiners Building

The company specializes in supplying oil companies. It has developed many special fabrics and colors. Service station employes constitute the bulk of its business.

Wall Rope Works, Inc.
New York City

27 Texas Building

In attendance

HAROLD M. WALL — G. C. TERRY
JAS. A. ENGLAND — J. L. DITTMAN

Exhibiting: Of interest to production men and cable tool contractors—The world famous "Wall" Walk-Laid bull ropes. Standard of quality throughout the oil fields. Built on the longest rope walk in the world.

Of interest to rotary contractors and tool pushers—New and improved 3 and 4 Std. cat lines specially constructed to stand the gaff and render increased service.

W. L. Walker Co.
Tulsa, Okla.

87 Texas Building

Will display the new Tulsa oil thief, new Tulsa gauging reel, automatic shut-off valve, six-volt centrifuge machine, and gauger's carrying case. These are all new improvements made during the last year.

Walworth Company
New York

104-105-106-107 Oklahoma Building

In attendance

HOWARD COONLEY — W. B. HOLTON
F. H. MOREHEAD — J. M. OLMSTED
F. W. DUEMLER — W. M. COOMBS
C. L. BRADBURY — C. G. FINKLE
HENRY NANNEN — E. L. CLARK
HENRY LAMBERT — EARL M. MAARS
JOHN R. RICE — JOE YOUNGGREN

Valves and fittings, representative of the complete line manufactured by this company for use in all divisions of the oil and gas industry, will be displayed. One of the features will be a 14-inch Series 300 Walworth steel gate valve, especially designed for refinery service where high-speed opening and closing are desired. This motor-operated valve will be in operation at the Walworth booth during the exposition.

Drilling gate and flow line valves and fittings, lubricated plug valves, including the lubricated plug valve especially designed for christmastree and mud line service, and items typical of the line of cast steel gate and globe valves and fittings for hot oil service, in Series 150 to 1500 inclusive, should prove interesting to men from the producing and refining divisions of the oil industry.

For service on oil country boilers, the newly developed line of 350 W.S.P. 750 F globe, angle, check and gate valves for steam line service will be displayed.

Walco, Walworth genuine Stillson and Parmelee pipe wrenches for use in all branches of industry will also be exhibited.

Waukesha Motor Co.
Waukesha, Wis.

Block "J"

In attendance

J. E. DeLONG — J. B. FISHER
J. G. SWAIN — A. F. CAMPBELL
E. R. RUTENBER — L. L. BOWER
T. R. KELLEY — G. A. DUNCAN
GEORGE KNIPFEL

One of the outstanding pieces of equipment to be exhibited is a 225 horsepower combination gas and diesel oil engine of 7-inch bore and 8½-inch stroke. Built on Hesselman patents primarily as an oil engine with solid injection, low compression spark ignition, conversion to butane or natural gas requires only external adjustments, no internal part of the engine being touched. By attaching a gas carburetor fuel system to the air intake manifold of the Hesselman engine, removing the floating member which drives the solid injection fuel pump so that it remains idle, and substituting six steel plugs for the fuel nozzles the entire change is accomplished. For wildcat drilling, this is a great convenience in economy which has been proved many times on the smaller series of Hesselman engines already popular among drillers.

Another new engine is the model WAK six-cylinder 5¾- by 6½-inch engine which is also a convertible oil and gas engine. Built as a Hesselman, this 1,014 cubic inch engine develops from 175-200 horsepower at 1,200-1,600 r.p.m. with the same output on butane gas fuel. A change-over from gas to solid injection diesel oil is accomplished in the same manner as with all other engines. The entire line of Hesselman engines, and these new ones as well, are built with overhead valves, wet sleeve cylinders, seven-bearing crankshafts, Bosch fuel injection pumps, and come complete with air cleaners, fuel and lubricating oil filters and ignition system.

A starting engine for large oil and gas engines will also be shown which is a small four-cylinder unit 2⅞- by 3½-inch. Used as a starting engine, it is built neatly and compactly into a mounting support, and comes with a double reduction gear housing which combines the free running clutch as well as the automatic pinion shaft in one fully enclosed assembly.

A fully operating butane plant, equipped with Ensign gas carburetors, regulator, and accessories, will be on display as well as the standard line of drilling, pumping, and servicing engines already known to the trade.

The Webster Engineering Co.
Tulsa, Okla.

22 and 23 Oklahoma Building

In attendance

GEORGE A. NELSON — HARRY COOK
GEORGE C. GERGTHOLDT — L. S. REAGAN

The exhibits are causes of combustion equipment and regulators for refinery and oil field service. Features of the exhibit will be the Webster VI series gas inspirator for use on all types of refinery gases as well as natural gas.

The construction of this burner makes it particularly adapted for the exceptionally rugged service required in refinery installation. Designed to provide

Webster VI series gas inspirator

the greatest possible capacity for this type burner, reamed throat gives high inspiratory qualities (65 per cent air). High discharge velocity gives a flame pattern that is not pulled up or distorted by draft conditions and therefore no steam is necessary for holding flame down from tubes. Spud is removable without disconnecting pipe connections. Air shutter adjustable to a fine degree by the use of a threaded air shutter.

Four sizes giving a wide range of capacities are available. Also the series 1,000 N.G.E. Nelson gas burner, a product of Natural Gas Equipment, Inc., will be shown.

Well Equipment Manufacturing Corp.
Houston, Tex.

168 and 169 Oklahoma Building

In attendance

C. K. STILLWAGON — S. H. SMITH
CHARLES H. LANE — E. L. OLIVER
C. A. POLK — L. S. HAMER
I. W. HEBNER

The corporation manufactures and distributes the following WECO products:

WECO wing unions.
WECO wire line oil savers.
WECO polish rod stuffing boxes.
WECO emergency pipe clamp and service saddle.
WECO universal combination or C. C. clamp.
WECO tubing disc breaker.
WECO gauge cocks.
WECO valve speed handles.

In addition to handling WECO products, the corporation acts as a sales agency throughout the Mid-Continent territory for the following manufacturers:

Hamer Oil Tool Co., Long Beach, Calif., manufacturer of Hamer EZ Turn lubricated plug valves, Hamer EZ out slush pump liner sleeves, and Hamer union blind.

The Okadee Co., Chicago, Ill., manufacturer of Okadee blow-off valves.

Gulf Lubricator Co., Tulsa, manufacturer of Gulf hydrostatic steam line and engine lubricators.

Real Fire Burner Co., Tulsa, manufacturer of Real Fire low-pressure gas burners.

Boiler Equipment Supply Co., Oklahoma City, Okla., manufacturer of Thompson Patented Fusible plugs and Thompson steam gauge protectors.

Special attention is called to the new improved WECO Dizzy Thread Wing unions and the new Hamer union blind, a positive shut-off with speed and safety. Particular attention is also called to the Hamer EZ Turn lubricated plug valves, with the new pressure equalizing plug.

Well Machinery & Supply Company, Inc.
Fort Worth, Tex.

Southeast Corner Block 7 Outside

In attendance

W. J. BROWN — H. G. PARR
W. B. BROWN — FRED EUSTACE
R. L. McCANN — ZACK BIGGERS

Will have on exhibition and in operation a Jumbo "J" Fort Worth Spudder with a 56-foot mast operated by a D13000 Caterpillar diesel engine. This machine has a safe drilling capacity of at least 5,000 feet and at this time on several locations in Texas they have been rigged up for drilling Ordovician tests to 6,500 feet. The Jumbo "J" has a spooling capacity of 11,500 feet of ⅞-inch cable. The brake drums are of alloy steel, air cooled, and the brake band consists of two 6-inch asbestos lined bands mounted on equalizer.

The sand reel is mounted on heavy duty SKF ball bearings throughout; the shaft in the sand reel in common with all of the shafts on the Jumbo "J" is of special alloy steel high tensile strength. All clutches are of the external friction type, eliminating grabbing when clutch is running idle. The mast is of solid "A" type construction of ample height to handle the longest joints of casing and the longest strings of tools. This mast is also available with a combination drilling and shear pole head suitable for seven-line casing block hookup. Either 4-inch or 6-inch drill pipe is used as supports for this combination head, and these pipe legs are U-bolted to the mast, making an extremely strong yet compact unit. The band wheel takes a 16-inch drilling belt which can be easily tightened by merely adjusting the screws on the band wheel shaft.

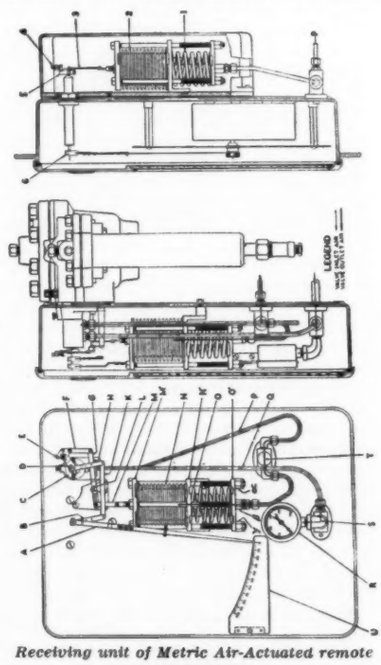
Westcott & Greis, Inc.
Tulsa, Okla.

65 to 68 Scientific and Technical Building

American Meter Company
Erie, Pa.

65 to 68 Scientific and Technical Building

The engineers of Metric Metal Works, Erie, Pa., of American Meter Co., announce the completion of field installation tests on their perfected new "METRIC" Air-Actuated remote recorder. A model will be exhibited



Receiving unit of Metric Air-Actuated remote recorder (top)

Sending unit of Metric Air-Actuated remote recorder (bottom)

by Westcott & Greis, Inc., division of American Meter Co.

This remote recorder accurately charts—at a point

remote from meter installation—the volume of gas, air, steam or fluid measured by orifice method. The device consists of sending, receiving and control apparatus—and the control mechanism may be installed in either the sending or receiving unit case. This same principle of remote transmission may be utilized in connection with zero to 100 per cent throttling—in the control of rate-volume, or for automatic reset control.

Position of differential pen arm in the sending unit of the remote recorder is at all times duplicated in the receiving unit by the position of the differential pen arm which makes the chart record, and there is little lag in synchronization. Sending and receiving units are connected by three-sixteenth inch copper tubing. To put the remote recorder into service, it is necessary only to set the differential pen arm at zero on the chart, and to open an air line valve and adjust a pressure reducing valve. Operation is positive.

Accuracy of this long distance transmitter has been verified during an extended period of rigorous test in various field installations.

In attendance

Representing Westcott & Greis, Inc.

J. H. SATTERWHITE H. W. WAHL
C. C. CLOVER B. E. KEELING
R. A. MARSH VAL LINK, JR.

Representing Crosby Steam Gage & Valve Co.

H. HORNE GEORGE F. FELKER

Representing Robinson Orifice Fitting Co.

G. GREEN

Representing Davis Regulator Co.

GEO. HOCHMEISTER GEO. C. DAVIS

Exhibit will consist of the following:

Products of Crosby Steam Gage & Valve Co., Boston, Mass: General line of indicating and recording pressure gages, stressing its steel bored tube; alloy steel trim indicating gage for long life, sulfur gas and oil work; pop safety valves for steam and exclusive nozzle-type relief safety valves for protection of tanks, compressors, stills and towers of every description for both liquids and vapors.

Robinson Orifice Fitting Co., Los Angeles, Calif.: Its new Type E orifice fitting, which permits changing or removing for inspection, orifice plates, without the necessity of turning off the medium being measured.

S. R. Dresser Manufacturing Co., Bradford, Pa.: Its complete line of Style 65 fittings, which are becoming in great demand for quick and easy connection work of every description.

Davis Regulator Co., Chicago, Ill.: Its back pressure and gas reducing regulators, float box control and balance valve, also solenoid operated balance valve, and liquid level controllers with special stress being placed on the diaphragm packless stuffing box for liquid level controls.

Buffalo Meter Co., Buffalo, N. Y.: Its high pressure water meter for well flooding operations. Standard water meter for general water measurement and oil and gasoline meter for refinery and bulk station users.

Meriam Co., Cleveland, Ohio: High and low pressure manometers.

Reliance Regulator Corporation

Alhambra, Calif.

Davis Regulator Co.

Chicago, Ill.

68 Scientific and Technical Building

In attendance

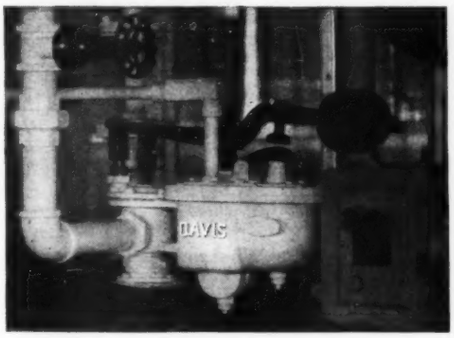
GEORGE C. DAVIS R. A. PETERSON

The Davis Regulator Co. of Chicago will exhibit in conjunction with Wescott & Greis, Inc., its Mid-Continent and Gulf Coast representatives. The material to be exhibited will include "automatic pressure and flow control specialties" for the gas and oil industry. Products on which recent improvements will be featured are the Packless Float Boxes and Diaphragm Motor Valves.

The design of the Davis Dia-Ball, the packless unit for liquid level controllers, has been simplified and the unit is contained in the head of the float box instead of being mounted on the end.

A complete line of Diaphragm Motor Valves has been developed. The design features inclosed spring case, valve position indicator, lubricated stuffing box, ball bearing stem guides, a finned cooling chamber and a selection of inner valves, including V ported and parabolic types for throttling action and a square ported type for quick opening. The line is so designed that any combination of these features may be incorporated on a valve.

Shown for the first time at any exhibit or convention of the oil industry will be the Davis Solenoid



Davis two-step solenoid valve manufactured by the Davis Regulator Co.

Operated Valves for automatic filling of all types of oil containers. These valves are used in connection with scales equipped with photo-electric eye and relays to control the action of the solenoid valve. With this equipment it is possible to automatically fill oil drums and barrels with negligible variation in net weight. The outstanding feature of the valve is the step action which eliminates the possibility of false weight caused by the velocity of the liquid flowing into the drum being weighed when the valve is wide open.

Crosby Steam Gage & Valve Co.

Boston, Mass.

68 Scientific and Technical Building

In attendance

G. F. FELKER F. H. BREOR
H. P. HAHN

The exhibit will include a new Four-pen pressure recorder, steel tube refinery gages, bronze tube pressure gages, vapor tension test gages, low pressure gages, high pressure and temperature relief valves, oil field boiler safety valves, and high capacity all-steel safety valves.

The Crosby pressure recorder has many new features. These include "power tested" interchangeable tubes, universal wall or flush mounting case, nonremovable push-pull chart hubs, one piece stainless steel pens, micrometer adjustable pen arms, full effective area charts, automatic cam locks, and all rag charts printed under controlled atmospheric conditions. These recorders are available in one-, two-, three-, or four-pen units and in all standard graduation ranges from 30 inches of vacuum to 10,000 pounds pressure.

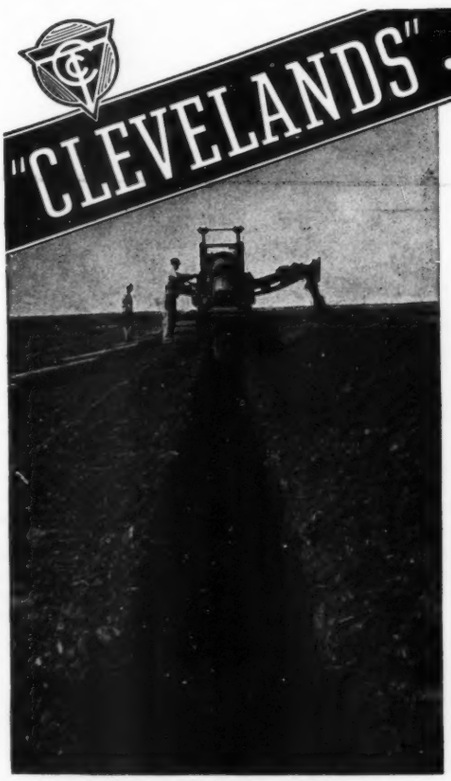
For pressures 15 pounds per square inch and below, which are beyond the scope of a Bourdon tube, Crosby has developed a gage with a bellows as its actuating mechanism. This gage is extremely sensitive and yet rugged in construction. Dial ranges are available from 8 ounces per square inch to 15 pounds per square inch.

A vapor tension gage has been especially designed for the Reid method of testing gasolines and related fluids. Each dial is hand-engraved to match the characteristics of its individual tube. The hand is turned 90° to present the narrow edge for easy reading. Both standard and suppressed scale dials can be furnished.

Crosby heavy-duty all-steel gages are built to give exceptional accuracy and long life on severe service, where rapid pulsation and vibration quickly wear out ordinary gages. The indicating mechanism is entirely of steel. The movements are mounted on rugged forged steel sockets minimizing the effects of exterior strains on the case. Sectors and pinions are machined from forged alloy steel, hardened and chromium plated. High pressure tubes are rifle-bored and turned from forged alloy steel billets. Tube connections are metal to metal screwed joints, leak-proof and strong.

Especially designed to meet the exacting conditions in refinery operation, Crosby valves provide dependable protection. They employ the "reaction" principle, which results in the high capacity, low blow down, and smooth operation. Nozzles and discs are constructed of forged alloy steel, castings are not used. Crosby oil field boiler

Ditch Your Next Job With "CLEVELANDS" . . . .



Be Assured of:

- The RIGHT Machine
- In the RIGHT Place
- At the RIGHT Time

Your next job may be on the prairie — or in the mountains. In loose sand, in sticky gumbo or in the rocky ground. It may be a new line or a reconditioning job.

When you use "Clevelands" you have modern equipment built to meet conditions as they are — and the best chance to meet schedules — at lowest operation costs.

From the husky Diesel or Gasoline-powered engine, to the improved high-capacity digging wheel, you'll find toughness, freedom from friction and protection against wear to an unrivaled degree. The result, increased strength and dependability with a notable lack of dead-weight and unnecessary bulk.

The proof is in the records and can be readily demonstrated for you without obligation. We will be glad to tell you how. Write today.

See "Clevelands" at the International Petroleum Exposition, Tulsa, Okla., May 14th - 21st. Our Exhibit is in Block "P".

Special Trailers for Truck Speed Transportation

THE CLEVELAND TRENCHER COMPANY

"Pioneer of the Small Trencher"

20100 St. Clair Avenue - Cleveland, Ohio

valves operate precisely and accurately with a minimum blow down. These valves have full rated capacity.

Western Iron & Foundry Co.
Wichita, Kans.

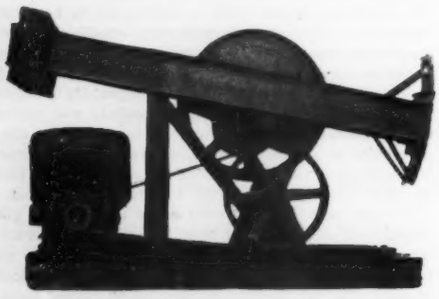
69 Texas Building

Outside space, Block D West end

In attendance

D. A. SWENSON — J. Q. WARREN
H. M. CORBETT — S. R. CLAWSON
E. R. DENNIS — A. D. KIPFER

In the outside space will be exhibited a friction type pumping unit; inside there will be a derrick, bubble tray, bubble caps, jack post chain oiler bearing, oil



bath side irons and saddle, mast heads, roller bearing countershaft and safety tubing holder mounted inside of the derrick.

The Western Wizard friction type pumping unit will give a smoother power, thereby eliminating rod trouble. By changing the eccentric in the large wheel, various lengths of stroke can be acquired from 18 to 87 inches. Also it is not necessary to change the reduction gear box for given depths of wells. In other words, this one type will pump any well up to 6,500 feet in depth. The replacement of the friction, which will last from two to three years, is nominal.

Westinghouse Electric & Manufacturing Co.
East Pittsburgh, Pa.

91, 92, 93, 118, 119, 120 Oklahoma Building

The Westinghouse Electric & Manufacturing Co. exhibit will include displays of the company's products of particular interest to the oil industry. Included will be an oil-well pumping unit in operation, a dynograph mounted on a sucker-rod to show stress measurements, socket-type instruments, a compact portable analyzer for determining electrical load measurements, an oil-immersed controller, a turbine with cover removed to show internal design, and a cutaway motor to show its internal construction.

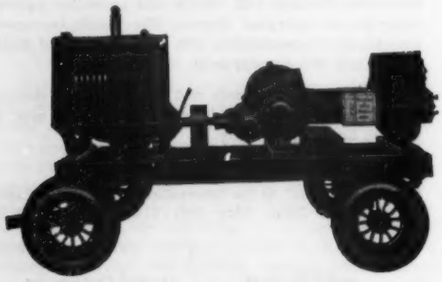
Wheatley Bros. Pump & Valve Manufacturers
Tulsa, Okla.

Outside section M

In attendance

FRANK WHEATLEY — DAN O'SHEA
TOM WHEATLEY — M. F. HAMPTON

Will display five duplex reciprocating type pumps in sizes 4-inch by 6-inch, 5-inch by 10-inch, and 7-inch



by 10-inch. These types will include both the direct drive and V-belt drive. A special feature of the exhibit will be a bronze fluid-end pump for high-pressure cementing and acid service. Additional equipment to be shown will include two sizes of Sterling Engine Co. gasoline engine driven centrifugal pumps, check valves and combination gate and check valves and a line tapping machine.

Wheeling Corrugating Co.
Wheeling, W. Va.

26 Scientific and Technical Building

The Wheeling Machine Products Co.
Wheeling, W. Va.

48 Kansas Building

In attendance

W. V. C. JACKSON — ALFRED BRIESE

The highlight of the exhibit will be the introduction of the new "All-Thred" closed thread protector, which is expected to be of great interest to exposition visitors.

Upset and plain tubing couplings, recessed line pipe couplings, exploration (shooting) couplings, and other "X-L" products will be displayed.

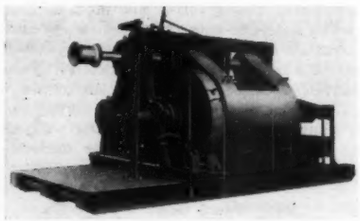
The Wheland Co.
Chattanooga, Tenn.

Block "R"

In attendance

GEORGE CAMPBELL — A. C. WILLINGHAM

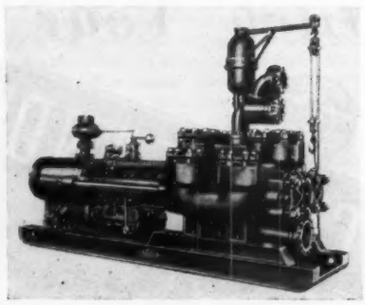
Wheland B-3200-A drawworks will be shown connected to an Allis-Chalmers electric drive, and shown in operation. The B-3200-A drawworks is designed



Wheland-Lucey B-3200-A drawworks

for drilling to depths of 10,000 feet. Four drum speeds and two rotary sprocket speeds are available.

Wheland-Lucey H-20000—15½-inch by 8-inch by 20-inch inverted steam end duplex slush pump. Combined steam and exhaust valves located below the steam



Wheland-Lucey H-20000 inverted steam end duplex slush pump

cylinders. Exhaust steam must blow out condensate before leaving cylinder.

Wheland-Lucey A-18000 triple oil bath rotary. Full length cast steel base provides full protection when moving. Even tension on lower grease seal maintained by coil spring arrangement. Separate oil reservoirs for main load, gear, pinion and pinion shaft bearings.

Wheland E-6500-BA oil bath swivel with spring loaded washpipe packing. Timken tapered roller bearings, SKF ball bearings, American roller bearings. Designed for deepest wells.

Wheland B-7000 reverse clutch. For internal combustion engine-powered rotary drilling outfits. Dodge Diamond "D" friction clutch for forward rotation. Bevel gears with brake drum for reverse. Cut tooth steel gears and pinions.

The White Motor Co.
Cleveland, Ohio

Block "G"

In attendance

ROBERT F. BLACK — J. N. BAUMAN
J. B. SUTTLES

A comprehensive display of heavy-duty six-wheel trucks, designed specifically for operation in the petroleum fields, will be the feature of exhibit, it is announced by J. N. Bauman, vice president in charge of sales.

Three units, the Models 904, 922, and 950, will be shown. Most important of the trio is the Model 950, White's latest contribution to the petroleum industry and the truck world in general. This unit is powered by the new White 362 cubic inch engine, capable of developing more than 280 pounds feet torque, an output greater than that of much larger engines of greater displacement.

Two exclusive engineering features are incorporated in the new engine—engine block and intake manifold design. The unique engine block design provides a special cooling system around the valve seats and valve guides, which system in its thoroughness practically eliminates the need for valve grinding. Of prime importance also is the "streamline" design of the intake manifold which provides a straight, unobstructed passage direct from the central vaporizing zone to the cylinders, thereby greatly increasing gasoline mileage, and insuring better engine performance.

The 362 cubic inch engine is also the first White truck engine ever equipped with hydraulic valve lifters of the zero-lash type. Through the use of these lifters, valves retain permanent adjustment throughout the life of the engine.

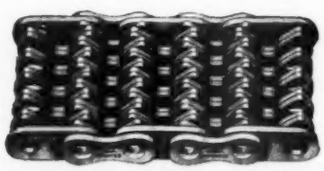
The Whitney Chain & Mfg. Co.
Hartford, Conn.

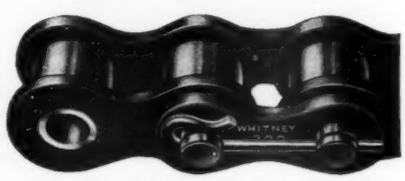
74, 75 Refiners and Marketers Building

In attendance

W. H. WHITNEY — R. J. HOWISON
J. W. ANDERSON

Will exhibit roller chain from ⅜-inch to 2½-inch pitches in single and multiple widths; silent chain in ⅜-inch to 1½-inch pitches; sprockets and roller chain





couplings, as used on portable drawworks, pumping units, hoists, winches and other oil field equipment.

Chains are accurately built of alloy steels to meet severe operating conditions, and complete engineering service is offered.

Wickwire Spencer Steel Co.
New York

109 and 110 Oklahoma Building

In attendance

R. J. JONES — O. C. ELLIOTT
E. J. DALY — D. J. HENECKER
K. A. ZOLLNER — R. L. FOSTER

Exhibiting Wickwire drilling lines.

Wico Electric Company
Springfield, Mass.

109-110 Texas Building

In attendance

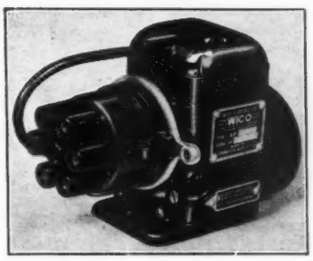
EDWARD L. STOUGHTON — LEON F. SMITH
HARRISON L. HART — VICTOR K. HUNT
JOSEPH JORDAN — HARRY LOLLEY

Products to be exhibited:
"OC" oil country magneto.
"EK" magneto for single cylinder engines.
"AP" series for heavy-duty oil field service.
"A" series for auxiliary equipment.
"FW" series for fractional horsepower engines.

This exhibit will feature the series AP magneto. This magneto is designed to meet the requirements of large engines with high compression and where 24-hour service is demanded. The series AP magneto uses needle bearings which, in conjunction with the circulating lubricating system give exceptionally long bearing wear under all speeds and conditions. A very prominent feature in this series AP magneto is the use of the

very high coercive value magnet steel in the rotor called nipermag steel. The use of this steel provides abundant spark output to meet conditions resulting from wide settings and burning of spark plugs.

The heavy-duty series AP magneto contains all these



features with the addition of a special heavy-duty coil, platinum points and high capacity condenser. Both the standard and the heavy-duty AP are built in a variety of specifications in both base and flange mountings—fixed and variable spark and for one-, two-, three-, four- or six-cylinder engines.

The company presents the AP magneto as a magneto especially designed for oil field use, where durability, high output and long life, free from frequent adjustment is essential.

Along with series AP magnetos will be displayed the other Wico models A, OC and EK, familiar to all oil men. The improvements in the OC have already added to its reliability and this year a new type heavy-duty coil will be displayed. On exhibit also will be the new flywheel series of magneto, for small, fractional horsepower industrial type engines and outboard motors.

Willard Storage Battery Co.
Cleveland, Ohio

34 California Building

In attendance

N. G. WOLF — A. S. STEAGALL
W. L. BOWRON — E. M. SUTHERLAND

The Willard company is showing its Dual Rubber Insulated types of batteries for all types of application especially where cycling or semicycling is encountered. Special information relative to geophysical and laboratory installations.

J. H. Williams & Co.
New York City

185 and 186 Oklahoma Building

In attendance

E. J. WILCOX — W. M. SILLIMAN

The products to be exhibited include: Williams' chain tongs: Vulcan, Vulcan Superior, Vulcan Supertongs, Vulcan Boll-Weevil, Boll-Weevil Zephyr.

Williams' chain pipe vises: Vulcan, Vulcan Superior.

Other tools: Superior carbon steel wrenches; adjustable wrenches; Superrenches, chrome-molybdenum, 12-point box, heavy duty; Supersocket wrenches, detachable; Superector, heavy duty ratchet wrench; socket wrenches; tool holders; lathe dogs; clamps; eye bolts; hoist hooks; and wire rope sockets.

Included are four new items being shown for the first time at any petroleum exhibit, i.e., Superior carbon steel wrenches, Williams' carbide tool holders, Williams, spring cutting-off tool holders and the double offset 12-point box Superrench.

Wilson & Bennett Mfg. Co.
Chicago, Ill.

39 Refiners and Marketers Building

The company will display various types of steel containers regularly used by the oil industry for the shipment and marketing of practically all types of oils and greases.

Oil companies generally are giving more and more attention to the appearance of their oil and grease containers. For example a 25-, 50-, or 100-pound grease drum is frequently kept either on the outside of the filling station or in a location that places it on display to the general public. Having this grease drum attractively decorated with the brand name or the name of the company provides the equal of a billboard space that is brought to the attention of users and causes them to remember this particular brand.

The company will have on display also its 5-gallon

The MOST COMPLETE LINE OF SEAMLESS STEEL WELDING FITTINGS MADE!

A portion of a large and complete stock of WeldELLS and other Taylor Fittings ready for immediate shipment.

NOT CONTENT with merely manufacturing the finest line of welding fittings, Taylor Forge & Pipe Works also makes the most complete line—the largest range of sizes and weights—the widest range of types. Your first reason for using Taylor WeldELLS is found in the unduplicated combination of features, illustrated opposite—features that are incorporated in no other Welding Fittings. But of almost equal importance is the fact that you can obtain fittings of any type or size in the usual range of thickness and you can get them "right now."

Stocks are carried by distributors situated at advantageous points to serve every branch of the oil industry. Ask for the new booklet "Throughout Industry."

TAYLOR FORGE & PIPE WORKS
General Offices and Works: P. O. Box 485, Chicago
New York Office: 50 Church Street

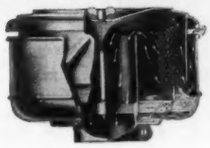
TAYLOR FORGE
WeldELLS
Seamless Pipe Fittings for Welding

You can't escape dust and grit in Oil Field operations—but you *can* avoid the damage these twin-plagues cause to inadequately protected equipment. Be sure the air filter you select gives you *complete protection.* Only Air-Maze air filters have the famous Air-Maze filter element that incorporates *exact progressive density* with circumferential design. This means no clogging, unusually low pressure drop, and longer periods of use before servicing is required. Get the facts about Air-Maze before you buy *any* air filter. Write today for Bulletin NIND-37.

AIR-MAZE CORP., 818 HURON RD. CLEVELAND, OHIO

AIR-MAZE
AIR FILTERS

Oil Bath Type
•
99.83% Efficient



Will Not Clog
•
Automatic Operation

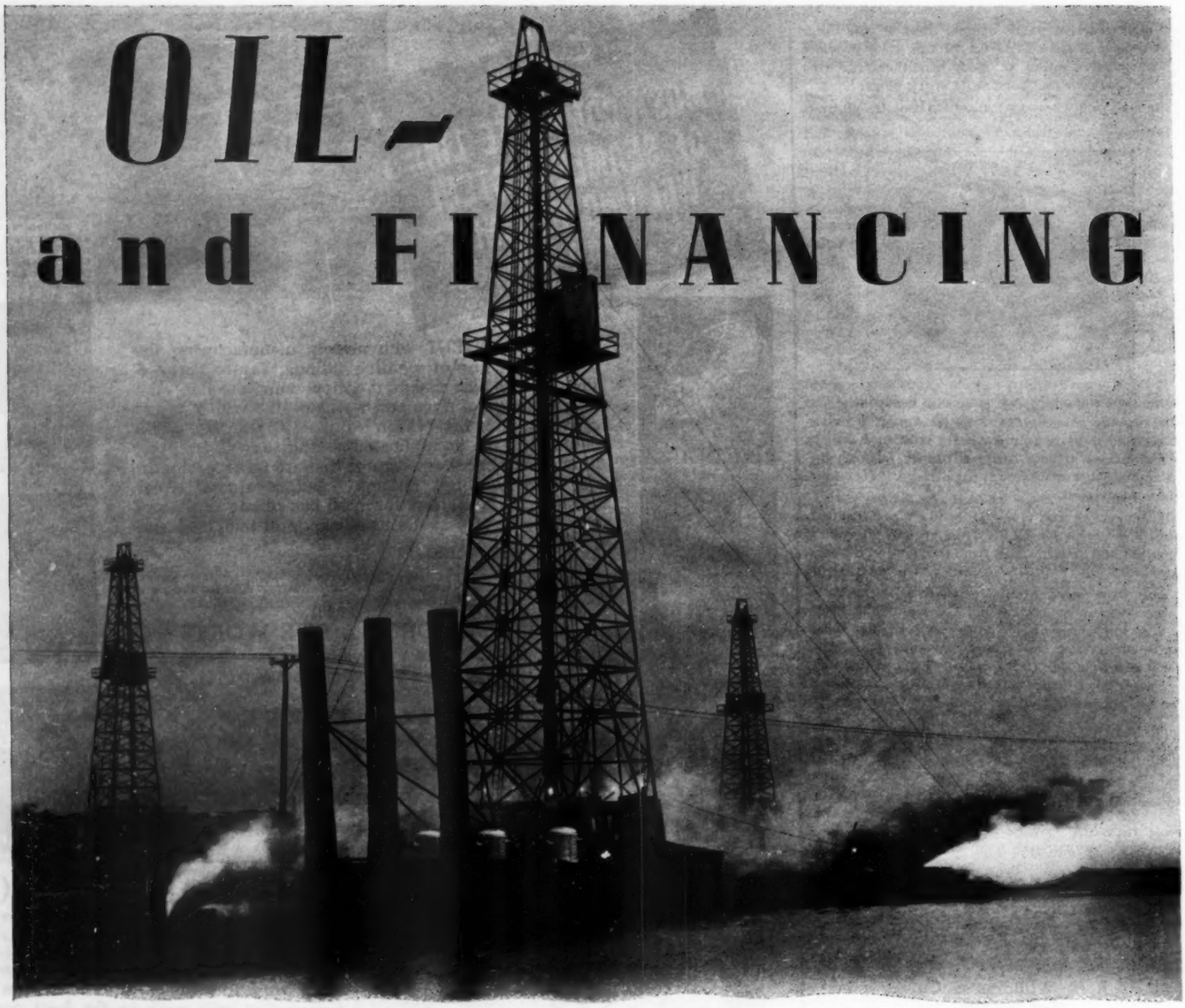
THE FINANCIAL ANGLE OF WATER SERVICE

Almost any shop can make a pump so that it will work in some way. But oil men want pumps that will work in the best possible way for the longest time at the lowest overall cost. That's the financial angle as we see it from the owner's viewpoint.

Engineering and production procedures in Pomona Pump Manufacturing Plants are dictated by this viewpoint. They involve correct design of every detail, the use of the best currently available materials for each specific purpose, adequate and modern plant facilities and expert workmanship.

POMONA PUMP CO.
Manufacturing Plants: Pomona, Calif. St. Louis, Mo.
Branch Offices: New York, Chicago, Los Angeles, San Francisco

OIL— and FINANCING



Oil is the Southwest's major source of wealth. Today it contributes directly or indirectly to every other business activity in the oil producing states.

The First National Bank and Trust Company has served the oil business from the first discovery of oil in the Mid-Continent, down through the years until today this Institution's knowledge of the Industry makes it the logical source for all forms of OIL FINANCING.

A COMPLETE BANKING SERVICE FOR EVERY DIVISION OF THE PETROLEUM INDUSTRY

REFINERY	PIPE LINE	DOMESTIC TRANSPORT	EXPLORATION	FUEL OIL
CRACKING PLANT	DRILLING	EQUIPMENT &	NATURAL GAS	ROAD OIL
STORAGE	EXPORT	MANUFACTURE	& GASOLINE	

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President, Skelly Oil Company

1895

THE FIRST NATIONAL BANK AND TRUST COMPANY OF TULSA

1938

We Bank on OIL

THE PIONEER IN OIL FINANCING FOR THE INDUSTRY

Por-Pails for lubricating oil. These pails have become the accepted standard packages for many oil companies and particularly those selling to the suburban and rural trade. No farmer can accumulate too many handy buckets or pails for use around the farm. Accordingly, selling lubricating oil in a 5-gallon pail that when empty can be used as a handy bucket around the farm has a very definite appeal that increases sales for those concerns using this type of container.

Most of the larger oil marketers throughout the country have adopted this Por-Pail as a standard part of their selling program and regardless of any types of packages that may have momentary or spasmodic popularity this one is always contained.

Wilson Manufacturing Co.

Wichita Falls, Tex.

East Half Block "U"

In attendance

B. L. LIGON — J. H. WILSON
B. A. McCULLAH — J. V. WINTLE

Exhibiting: Latest improved Titan model Wilson drilling rig. Several new improvements on an already world famous power driven rotary drilling rig. This rig is equipped with two Le Roi 350-horsepower gas-gasoline engines.

Wilson utility unit, consisting of 5-kw. generator, water pump, air compressor, and emery grinder, all powered from a Caterpillar diesel motor, with a sprocket for starting the main engines or driving water pump, etc.

Mogul model Wilson double drum winch with improved rocker arm type spudding attachment, the most highly perfected device of its kind. This machine is equipped with a new internal expanding shoe-type friction clutch; a clutch with a holding power more than double that of any clutch of similar size previously used in winch drums. Another feature of this clutch is the forced-air-cooling, which keeps both the clutch and brake surface cool at all times. This clutch is smooth, easy of engagement, has great holding power, long life, easy adjustment, easily replaceable block type friction lining, and has the added feature that in the event of trouble with the friction clutch, the clutch can be locked to the drum by simply putting in three bolts and a jaw clutch on the countershaft used to control the drum.

New Wilson Winchmobile. — A self-propelled vehicle with either single or double drum winch, and single or double leg type telescopic mast. The winch on display will be double-drum winch with double-leg mast pole suitable for use on wells up to 4,500 feet deep.

Senior model single-drum Wilson winch.

(In International Harvester Co.'s exhibit) — One Wilson Super Model winch mounted on WA-40 International Harvester tractor.

Latest improved Atlas model power driven rotary rig equipped with two Cummins diesel engines of 200 horsepower each (on display in Mid-Continent Supply Co. space).

Wilson Welder and Metals Co., Inc.

New York City

30 to 34 Oklahoma Building

Featuring the Wilson Yellow Jacket pipe line machine, a new electric welding machine designed exclusively for pipe line work, obtainable in 300 and 400 amperage capacities. The company has constructed its machine with a ruggedness far beyond that which is needed in less rigorous work. New features which contribute toward the machine's dependability under extreme conditions, are: Double sediment collectors for carburetor supply; improved fool-proof idling device; large 36-gallon capacity gasoline tank; improved current switch; close coupled design; a lowered center of gravity of 1 foot; light-weight reinforced base and framework; center lifting bail; double-radiator protecting grill. Two hinged panels are placed on each side, permitting instant and easy access to all controls. Optional equipment includes either battery or magneto ignition.

Witte Engine Works

Kansas City, Mo.

1 California Building

In attendance

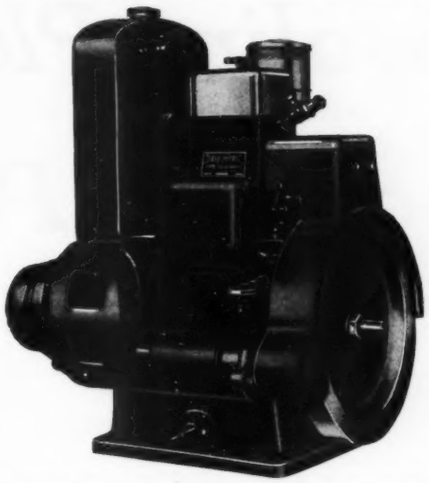
WARREN L. LANGLEY — DEWEY PHILLIPS

Exhibiting:

A vertical Dieselectric plant, 110 volts, A.C., manual starting, 2,500 watts, mounted on a special steel base in combination with a two-stage air compressor.

A vertical Dieselectric plant, 110 volts, D.C., 2,500 watts, equipped for electric starting and remote control.

The Witte is the small vertical diesel that takes full



advantage of the startling economy of the diesel principles. Here is diesel power in its smallest, most compact form. Fuel consumption is one-half pint of non-explosive fuel per horsepower per hour. All electric power and light is produced for less than 1 cent per kilowatt.

The exhibit also includes a Witte horizontal Dieselectric plant, 110-220 volts, A.C., 4,000 watts, manual starting, and a 6-hp. Witte gas or gasoline, enclosed, self-oiling, roller-bearing engine.

The Wood Shovel and Tool Company

Piqua, Ohio

Frick-Reid Building and Texas Drive

In attendance

F. T. NIPHER — D. M. BELL

This company is to have two exhibits. A booth will be occupied in the Frick-Reid Supply Corp. Building, where various types of hand shovels, spades, and scoops will be shown. Also a new item which is of great interest to the oil refineries, a line of shovels and scoops produced from aluminum alloy which have nonsparking qualities. It is therefore a safeguard for the refineries against explosion being caused by sparking of metals.

In addition to the exhibit in the Frick-Reid Building, it will also have a machine showing how it tests the abrasive wear and strength of shovels. This will be in operation in booth No. 1 on Texas Drive.

Worthington Pump and Machinery Corp.

Harrison, N. J.

Block L

In attendance

H. C. BEAVER — D. K. CHADBOURNE
A. H. BORCHARDT — F. J. WHELAN
W. L. RUSSELL — F. J. ELLIS
R. J. ALLEN — O. BANNER
J. C. BARNABY

Exhibiting many recent developments of oil field equipment now offered by the corporation. From a long list of equipment exhibited by Worthington, three outstanding developments appear to be the new LPE gas engine, a medium speed, moderately-priced power unit; the Saddle Mount centrifugal pump, designed for pumping hot and volatile liquids; and the high-pressure, type PG, steam pump for boiler feed and gathering service.

The LPE gas engine, developed for applications where a moderately priced power unit is required, is similar to the Worthington LCE gas engine compressor unit. All replacement parts, with exception of the main frame, are interchangeable between these two units. Built in 4-, 6-, and 8-cylinder combinations, the LPE line is rated from 180 horsepower to 360 horsepower, at 400 r.p.m. These units are pressure lubricated throughout.

The Saddle Mount centrifugal pump, type H, represents a complete line of single-stage, vertically-split-case pumps especially designed for refinery service. It incorporates many new and interesting features.

The type PG duplex steam pump is specifically an oil field equipment. The liquid end, conservatively rated for a working pressure of 1,000 pounds per square inch, is of the side pot type. The steam end features piston steam valves designed for 350 pounds pressure. Developed for high-pressure boiler feed and gathering service in the oil fields, this unit is mounted on steel skids to facilitate portability.

With this equipment, the corporation will also exhibit gasoline-engine-driven power pumps; Hivol, single, direct-acting steam pumps; motor and turbine driven centrifugal pumps; duplex steam pumps; and air compressors.

Young Engine Corporation

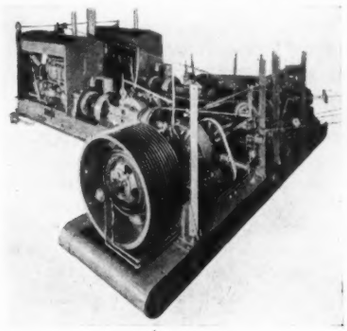
Canton, Ohio

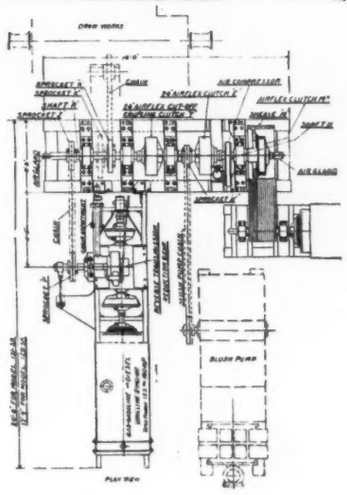
West Portion Block "A" Outside Space

In attendance

MR. YOUNG — MR. AVERS
MR. LEMON — MR. IVERSON
MR. FOSTER

Flexible use of power is one of the important features of the new Universal jackshaft by this corporation. With this equipment the drilling engine, while





drilling, furnishes power to the rotary tables through the jackshaft while the power unit drives the slush-pump. When handling the pipe, the engines may be compounded by engaging the Airflex cut-off coupling clutch when their combined power may be delivered either to the drawworks or to the slushpump. When additional power is required a third engine may be installed.

John Zink Co.

Tulsa, Okla.

Block M Oklahoma Drive

Block M

In attendance

JOHN ZINK — WALTER J. COMBS
ROBERT REED — E. R. McCARTHY
S. S. SMITH

Exhibiting combination oil and gas burners for refinery stills and boilers. Horizontal Bi-Mix burners for refinery use. Vertical Bi-Mix burners for oil field boilers. Butane burners for gasoline plants and drilling boilers. Low pressure gas burners. Domestic furnace burners. There will be on exhibit a vertical Bi-Mix burner in operation in a small furnace.

New equipment: BMD combination oil and gas burner, which is the same as the company's horizontal Bi-Mix burner with the exception of dual aspirators. It has two aspirators instead of the single aspirator.

Series Z and Series Y center-fire louver type combination oil and gas burners.

Bi-Air refractory burners for low pressure gas.

Natural Gasoline Plants Show Small Decline in Past Year

By D. H. STORMONT

The number of natural gasoline plants in the United States continued to decline in the past year but at a much slower rate than in the previous year. On May 1, 1938, there were 680 plants as contrasted to 710 plants at that time in 1937. Thus during the past year the number of plants decreased only 30 while in the previous year the decline was well over 100. It therefore appears that the downward trend in the number of plants, started in 1929, has nearly reached its low point and that near-future years will see the decline curve continue to flatten out.

In the matter of plant capacities the past year has also seen a continuance of the growth started in 1935, but like the decline in the number of plants, at a much slower rate. The 680 plants show a total daily gasoline capacity of 10,888,507 gallons, or about 200,000 gallons more than on May 1, 1937. This compares with a growth of 600,000 gallons in 1936. The capacity of operating plants, however, shows a much larger growth since at this time there are only 47 plants, with a daily capacity of 211,730 gallons, shut down whereas on May 1, 1937, the 63 shutdown plants had a capacity of 521,500 gallons. Thus in addition to the 200,000 gallons a new capacity, some 310,000 gallons of capacity was, figuratively, converted to operating.

A study of the accompanying table of plant capacities by states reveals that the majority of states show but little change from a year ago, in both the number of plants and in capacity. Several of the states, especially California, Texas, and Oklahoma, show substantial changes in either the number of plants or in capacity.

Texas, the largest state in capacity, and this year for the first time in the number of plants, shows a gain of 11 plants and about 340,000 gallons increase in capacity. Construction activities were well distributed throughout the state during the year, with the Southwest and Gulf Coast areas showing the most new plants. Some six or eight plants were recently built in these two areas.

The East Texas area shows a gain of three plants as compared with a year ago, but its production and capacity has shown a much larger gain. The daily output, according to latest Texas Railroad Commission figures, is now some 568,000 gallons of natural gasoline and over 270,000 gallons of propane-butane. A year ago the total for the district was about 487,000 gallons daily. Manufacturers in that area during the year continued to add propane-butane extraction equipment so that these two fractions now constitute a considerable fraction of the total output. Also, through increasing the efficiency of their plant operations, operators in the East Texas area are now recovering about 2.46 gallons of natural per 1,000 feet as contrasted with 2.29 at the same time in 1937.

The Panhandle area easily maintained its first place in production and in number of plants. An increase of three is shown in the number of plants operating in that district. The daily output, however, shows a much greater relative gain, about 130,000 gallons daily. This increase is accounted for largely by increased recovery per 1,000 feet, comparative figures for this time and a year ago being .75 and .66 gallon, respectively.

In California there was neither a large amount of new plant construction nor plant enlargement work, so that both the number of plants and the state's total capacity declined. The active capacity, however, remained relatively unchanged as both the number of shutdown plants and their capacity declined. On May 1, 1938, the capacity of 12 shutdown plants was 136,255 gallons, whereas at that time in 1937 the capacity of 16 shutdown plants was 295,000 gallons. Therefore, the decline from 3,217,550 gallons on May 1, 1937, to 3,106,805 gallons is offset by the increase in active capacity.

Oklahoma and Kansas show like trends in the number of plants, both showing declines, but while the plant capacity continued to decline in Oklahoma an increase is shown in the Kansas total. Construction activity in these two states consisted largely of plant remodeling and enlargement work, although a few plants were added in both states. Oklahoma totals show a decline of 12, from 150 to 138, in the number of plants and from 2,256,530 gallons to 2,162,610 gallons in plant capacity during the past year. Plants removed from the list, however, were in many instances some that had been shut down for several years. Thus their dismantlement had no effect on the state's actual operating capacity. Kansas shows a decline of two plants, to 18, but its capacity now totals 338,270 gallons as compared with 292,350 a year ago.

Louisiana, following its rapid growth in 1936 and the early part of 1937, shows a decrease in both capacity and number of plants as compared with one year ago. Several new plants were constructed, but their number and capacity was more than offset by abandonments of other plants. The total for the state now shows 30 plants, three of which are shut down, and a capacity of 532,720 gallons.

The Appalachian area and Illinois and Kentucky show only minor changes in capacity. Pennsylvania shows a decline of 18 plants and a decrease of 20,000 gallons in capacity.

Natural Gasoline Industry

	No. of plants	Daily capacity (gallons)
May 1, 1938	680	10,888,507
May 1, 1937	710	10,691,352
May 1, 1936	841	10,083,687
May 1, 1935	850	9,909,797
May 1, 1934	882	10,241,989
May 1, 1933	919	10,308,354
May 1, 1932	948	10,536,182
May 1, 1931	987	10,531,511
May 1, 1930	1,071	9,541,320
May 1, 1929	1,124	8,695,727
May 1, 1928	1,229	7,865,652
May 1, 1927	1,148	6,947,264
May 1, 1926	1,063	5,121,000
May 1, 1925	1,143	4,642,561
May 1, 1924	1,012	3,396,961

Natural Gasoline Plant Capacities by States

	No. plants		Daily capacity (gals.)	
	1938	1937	1938	1937
Arkansas	9	9	92,660	60,227
California	105	109	3,106,805	3,217,550
Colorado	1	2	6,000	6,500
Illinois	28	28	17,300	19,651
Kansas	18	20	338,270	292,350
Kentucky	3	4	35,500	37,000
Louisiana	30	33	532,720	585,527
Michigan	3	3	19,500	17,000
Montana	1	1	16,000	16,000
New Mexico	6	4	208,000	145,000
Ohio	11	11	48,600	48,700
Oklahoma	138	150	2,162,610	2,256,530
Pennsylvania	92	110	91,030	111,575
Texas	144	133	3,735,250	3,395,430
West Virginia	84	85	364,962	362,512
Wyoming	7	8	113,300	118,800
Total	680	710	10,888,507	10,691,352

Note—May 1, 1938, includes 47 plants with 211,730 gallons daily capacity listed as shut down. May 1, 1937, includes 63 plants with 521,500 gallons daily capacity listed as shut down.

Natural Gasoline Company Personnel

A

Airoline Gasoline Corp., Shamrock, Tex.
Pres., Forrest E. Gilmore. *V. P.*, Carl W. Gilmore. *Sec.* and *Treas.*, H. O. Whitfield. *Gen. Supt.*, Carl W. Gilmore. *Supt.*, Jess Patterson. *Plant* in Texas. *Capacity*, 8,000.

Akin Gasoline Co., 1801 National Bank of Tulsa Bldg., Tulsa, Okla.
Pres., J. H. McCoy. *V. P.*, C. M. Withington. *Sec.* and *Treas.*, H. R. Johnson. *Plants* in Oklahoma. *Capacity*, 600.

Aldon Gasoline Co., National Bank of Tulsa Bldg., Tulsa, Okla.
Pres., A. M. Ballard. *V. P.*, Paul M. Raigorodsky. *Sec.*, Wilbur J. Holleman. *Treas.*, R. J. Wallace. *Gen. Supt.*, Paul Schaefer. *Pur. Agt.*, Paul Schaefer. *Sales Mgr.*, Paul M. Raigorodsky. *Plant Supt.*, E. W. Burt, P. O. Box F, Haven, Kans. *Plant* in Kansas. *Capacity*, 10,000.

Alum Rock Gas Co., 78 Mill St., Port Allegany, Pa.
Pres., C. I. Crippen. *V. P.'s*, J. H. Isherwood, C. R. Beddows. *Sec.*, J. C. Forsyth. *Treas.*, C. R. Beddows. *Gen. Supt.*, E. H. Crippen. *Plant* in Pennsylvania. *Capacity*, 500.

American Oil Development Co., 1601 Oliver Bldg., Pittsburgh, Pa.
Pres., Harry S. Tack. *V. P.*, Theodore E. Tack. *Sec.*, Willis H. Siegfried. *Treas.*, Augustus V. Tack. *Gen. Supt.*, John Petty, Sistersville, W. Va. *Supt.*, George H. Hays, Box 125, Robinson, Ill. *Plants* in West Virginia and Illinois. *Capacity*, 1,900.

Anzac Oil Corp., Coleman Office Bldg., Coleman, Tex.
Pres., M. G. Cheney. *Sec.* and *Treas.*, W. E. Stepp. *Supt.*, R. E. Alsop. *Plant* in Texas. *Capacity*, 1,000.

Arab Gasoline Corp., Eastland, Tex.
Pres., Samuel Butler. *V. P.*, P. T. Sharples. *Sec.* and *Treas.*, W. E. Cox. *Ch. Chem.*, J. H. Cheatham, Jr. *Pur. Agt.*, Roy L. Allen. *Plant Supt.*, R. S. Railey, Eastland, Tex. *Plant* in Texas. *Capacity*, 25,000.

Arkansas Fuel Oil Co., Slattery Bldg., Shreveport, La.
V. P.'s, J. R. Munce, F. R. Coates, A. F. Holliday. *V. P.* and *Gen. Mgr.*, D. W. Harris. *Gen. Supt.*, A. H. Weyland. *Sec.*, T. J. Heard. *Treas.*, B. R. Muirhead. *Gen. Supt.* Nat. Gaso. Plants, E. P. Farmer. *Sales Mgr.*, J. A. Welch. *Pur. Agt.*, J. Lucas. *Ch. Engr.*, H. T. Goss. *Supts.*, T. F. Gordon, P. O. Box 1659, Longview, Tex.; T. S. Gordon, P. O. Box 629, Homer, La.; A. J. MacKinnon, P. O. Box 127, Simsboro, La.; J. F. Smithson, P. O. Box 121, Vivian, La.; S. Cunningham, Exchange Bldg., El Dorado, Ark.; J. I. Ramsey, P. O. Box 42, Sligo, La.; M. H. Trout, P. O. Box 801, Jefferson, Tex. *Plants* in Arkansas, Illinois, Louisiana and Texas. *Capacity*, 142,500.

B

Bankline Oil Co., 634 S. Spring St., Los Angeles, Calif.
Pres., John Barneson. *V. P.'s*, H. J. Barneson, J. L. Barneson, Lionel T. Barneson. *Sec.*, W. E. Kropp. *Gen. Mgr.*, L. L. Aubert. *Asst. to Gen. Mgr.*, H. M. Paulsen. *Pur. Agt.*, John C. Penn. *Supt.*, L. J. Patrosso, Box 6203, Signal Hill, Calif. *Plant* in California. *Capacity*, 20,000.

Barnsdall Oil Co. (Calif. Division), 714 W. Olympic Blvd., Los Angeles, Calif.
Pres., E. B. Reeser. *V. P.'s*, R. A. Broomfield *(Exe. V. P.)*, W. C. Whaley, E. M. Skeehan, R. A. Broomfield, Jr. *Sec.*, James A. Dunn. *Treas.*, L. D. Messner. *Gen. Supt.*, J. C. Gilbert. *Ch. Chem.*, J. R. Irvine. *Pur. Agt.*, W. S. Cederlof. *Plant Supt.*, O. C. Nelson, Rt. 1, Goleta, Calif. *Plant* in California. *Capacity*, 60,000.

Barnsdall Oil Co., Petroleum Bldg., Tulsa, Okla.
Pres., E. B. Reeser. *V. P.'s* D. R. Snow, L. D. Messner. *Sec.*, James Dunn. *Treas.*, L. D. Messner. *Gen. Supt.*, A. J. Schlosser. *Pur. Agt.*, O. E. McClatchey. *Ch. Engr.*, H. W. Manley. *Plant Supts.*, J. O. Green, Box 36, Earlsboro, Okla.; E. E. Troyer, Box 224, Avant, Okla.; Frank Chambers, Box 156, Beggs, Okla.; C. I. Stearns, Box 472, Odessa, Okla.; F. W. Tunstall, Turley, Okla.; R. W. Shannon, Box 173, Rt. 2, Oxford, Kans.; G. R. Nicholas, Box 228, Osage, Okla.; N. C. Hillhouse, Rt. 1, Barnsdall, Okla. *Plants* in Oklahoma, Kansas and Texas. *Capacity*, 59,500.

Bartlett Gasoline Co., 1801 National Bank of Tulsa Bldg., Tulsa, Okla.
Pres., J. H. McCoy. *V. P.* and *Gen. Mgr.*, Dean E. Foster, 1435 S. Carson. *Sec.* and *Treas.*, H. R. Johnson. *Sales Mgr.*, A. J. Pfister. *Supt.*, E. W. Melling, Box 467, Butler, Okla. *Plant* in Oklahoma. *Capacity*, 18,000.

Bayliss & Fasenmeyer, Titusville, Pa.
Plant in Pennsylvania. *Capacity*, 500.

Abbreviations:

Chm. Bd.—Chairman of Board
Pres.—President
V. P.—Vice President
Sec.—Secretary
Treas.—Treasurer
Gen. Mgr.—General Manager
Gen. Supt.—General Superintendent
Sales Mgr.—Sales Manager
Tankcar S. M.—Tankcar Sales Manager
Pur. Agt.—Purchasing Agent
Traf. Mgr.—Traffic Manager
Ch. Engr.—Chief Engineer
Supt.—Superintendent
Asst. Supt.—Assistant Superintendent
Ch. Chem.—Chief Chemist
Capacity—gallons per day

Belridge Oil Co., 815 Edison Bldg., Los Angeles, Calif.
Pres., Burton E. Green. *V. P.'s*, Frank H. Buck; H. L. Westbrook; F. B. Sutton. *Sec.*, F. B. Sutton. *Treas.* H. L. Westbrook. *Field Mgr.*, C. E. Coleston. *Pur. Agt.*, W. C. Wickersham. *Supts.*, C. H. Peters, McKittrick, Calif.; F. E. Amburn, Taft, Calif. *Plants* in California. *Capacity*, 87,000.

Big Lake Oil Co., 223 Fourth Ave., Pittsburgh, Pa.
Pres., J. C. Trees. *V. P.'s*, W. S. Hallanan, Charles E. Beyer, A. B. Dally, Jr. *Sec.* and *Treas.*, W. E. Huston. *Ch. Chem.*, J. C. Moore. *Pur. Agt.*, R. E. Johnson. *Plant Supt.*, C. C. Hickle, Texon, Tex. *Plant* in Texas. *Capacity*, 50,000.

Blue Creek Oil & Gas Co., 705 Security Bldg., Charleston, W. Va.
Pres., George E. Thomas. *V. P.*, D. T. McClure. *Sec.* and *Treas.*, G. E. Tribble. *Gen. Supt.*, D. T. McClure. *Plant Supt.*, G. W. McCamey, Blue Creek, W. Va. *Plant* in West Virginia. *Capacity*, 3,500.

Brea Canyon Oil Co., 832 Standard Oil Bldg., Los Angeles, Calif.
Pres., Dan Murphy. *Sec.*, G. Holterhoff, Jr. *Plant* in California. *Capacity*, 14,000.

Brenneman & MacDonell, 922 Trust Bldg., Lima, Ohio
Partnership. Plant Supt., E. R. Perfect, Box 337, Oblong, Ill. *Plants* in Ohio. *Capacity*, 1,350.

Buckeye Natural Gasoline Corp., 504 East Archer, Tulsa, Okla.
Pres., C. C. Cartwright. *V. P.'s*, John M. Wilson, A. V. B. Candler. *Sec.* and *Treas.*, James T. Neal. *Ch. Chem.*, Earle M. Hughes. *Pur. Agt.*, H. E. Heywood. *Ch. Engr.*, J. E. Harris. *Plant Supt.*, E. C. Smith, Magic City, Tex. *Plant* in Texas. *Capacity*, 18,000.

C

Cabot Carbon Co., 77 Franklin St., Boston, Mass.
Pres., Godfrey L. Cabot. *V. P.*, R. G. Allen. *Sec.*, F. C. Fernald. *Treas.*, Thomas D. Cabot. *Gen. Supt.*, F. M. Neely. *Plants* in Texas. *Capacity*, 40,000.

Calumet Oil Co., 517 I. W. Hellman Bldg., Los Angeles, Calif.
Pres., J. E. Wallis. *V. P.'s*, W. F. Staunton; Philip B. Kennedy. *Sec.*, Irene Trelease. *Treas.*, W. F. Staunton. *Gen. Supt.*, R. S. Warren. *Plant* in California. *Capacity*, 1,000.

Canadian River Gas Co., Colorado Springs, Colo.
Pres., N. K. Moody, Tulsa, Okla. *V. P.'s*, P. C. Spencer, New York City; Albert R. Jones, Kansas City, Mo.; R. E. Wertz, Amarillo, Tex. *Sec.* and *Treas.*, George Baird, New York City. *Gen. Supt.*, R. A. Ford, Amarillo, Tex. *Pur. Agt.*, L. B. Whitefield. *Ch. Chem.*, J. H. Hallenberger, Channing, Tex. *Ch. Engr.*, G. F. Brunston. *Supt.*, L. W. Jackson, Channing, Tex. *Plant* in Texas. *Capacity*, 30,000.

Cannon Gasoline Co., Amarillo, Tex.
Pres., J. J. Hastings. *Sec.*, J. B. Dooley. *V. P., Treas.* and *Pur. Agt.*, F. J. Storm. *Plant* in Texas. *Capacity*, 5,000.

Carbide & Carbon Chemicals Corp., 30 E. Forty-second St., New York City.
Pres., J. A. Rafferty. *V. P.'s*, G. O. Curme, Jr., R. W. White, H. E. Thompson, J. W. McLaughlin, J. G. Davidson. *Sec.*, A. C. Cornell. *Treas.*, P. F. Smith. *Gen. Supt.*, R. N. Graham. *Sales Mgr.*, W. F. Reich, Jr. *Ch. Chem.*, G. V. Scofield. *Pur. Agt.*, W. F. Ackerman. *Ch. Engr.*, C. S. Dunn. *Plant Supts.*, C. M. Stuter, Hastings, W. Va.; F. W. Hineline, Diamond, W. Va. *Plants* located in West Virginia. *Capacity*, 3,500.

Cargray Corp., 817 Amarillo Bldg., Amarillo, Tex.
Pres., D. D. Harrington. *V. P.'s*, L. R. Hagy, Stanley Marsh. *Sec.* and *Treas.*, Beaumont Stinnett. *Gen. Supt.*, I. Earl Nutter. *Plant Supt.*, Charles Free, Pampa, Tex. *Plant* in Texas. *Capacity*, 100,000.

Carnegie Natural Gas Co., 962 Frick Annex, Pittsburgh, Pa.
Pres., S. W. Meals. *Sec.*, J. W. Hamilton. *Treas.*, H. E. Jeffries. *Gen. Supt.*, H. J. Hess. *Plants* in Pennsylvania and West Virginia. *Capacity*, 11,800

Carpenter (M. A.), Karns City, Pa.
Plant in Pennsylvania. *Capacity*, 200.

Carter Oil Co., The, National Bank of Tulsa Bldg., Tulsa, Okla.
Pres., J. J. Conry. *V. P.'s*, L. F. McCollum; F. W. Floyd; James A. Veasey. *Sec.*, James A. Veasey. *Asst. Sec.* and *Treas.*, C. D. Mills. *Gen. Supt.*, George E. Edgett. *Pur. Agt.*, J. R. Freeman. *Ch. Chem.*, C. M. Richardson. *Ch. Engr.*, M. L. Haider. *Supts.*, W. T. Mills, Box 758, Wilson, Okla.; A. E. Perry, Box 726, Fittstown, Okla.; Clyde Randles, Box 1151, Seminole, Okla.; P. A. Ratliff, Box 8, Cromwell, Okla.; William Brown, Box 1151, Seminole, Okla. *Plants* in Oklahoma. *Capacity*, 92,000.

Central States Production Corp., 700 Oklahoma Bldg., Tulsa, Okla.
Pres., Paul K. Sticelber. *V. P.*, W. F. Hebeler. *Sec.*, E. C. Brown. *Treas.*, F. H. Hoyt. *Gen. Supt.*, A. H. Burgess. *Pur. Agt.*, E. C. Wetter. *Ch. Engr.*, W. R. Kubista. *Plant Supt.*, M. V. Davies, Wetumka, Okla. *Plant* in Oklahoma. *Capacity*, 1,500.

Chambers Oil Co., 214 Chambers Bldg., Oil City, Pa.
Plant in Pennsylvania. *Capacity*, 150.

Chase Gasoline Co., Thistle Bldg., Sistersville, W. Va.
Pres., J. J. McKay. *V. P.* and *Sec.*, C. A. McKay. *Treas.*, H. Boyers. *Supt.*, B. L. Ellis, Muskogee, Okla. *Plants* in Oklahoma. *Capacity*, 2,000.

Chief Refining Co., Gladewater, Tex.
Plant in Texas. *Capacity*, 5,000 (shut down).

Cimarron Gasoline Corp., Coyle, Okla.
Pres., W. F. McDonald. *Sec.* and *Treas.*, O. S. Stokeley. *Plant* in Oklahoma. *Capacity*, 4,500.

Cities Service Oil Co. (Del.), Empire-Masonic Bldg., Bartlesville, Okla.
Pres., H. R. Straight. *V. P.'s*, H. D. Frueauff, A. W. Ambrose, C. E. Murray, W. H. Merritt, *Sec.*, C. E. Murray. *Asst. Treas.*, L. A. Lynd and A. C. Kleinschmidt. *Gen. Supt.*, H. A. Ells. *Asst. Gen. Supt.*, R. W. Johnston. *Sales Mgr.*, S. B. Crooks. *Pur. Agt.*, Harris Bateman. *Supts.*, C. E. Aydelotte, R.F.D. Teter, Hamilton, Kans.; A. S. Corey, Box "V", Haven, Kans.; J. A. Dowler, Box 2093, Wichita, Kans.; G. F. Downs, Tallant, Okla.; W. H. Tillock, Box 395, Seminole, Okla.; I. L. Fletcher, Box 1238, Odessa, Tex.; L. L. Grubb, Box 1205, Seminole, Okla.; V. F. Hobart, Box 30, Sasakwa, Okla.; J. F. Hodge, Route 1, Box 600, Seminole, Okla.; R. L. Mitchell, Drawer "F", Konawa, Okla.; J. L. Sperry, Box 1742, Pampa, Tex.; D. G. Thoes, Box 498, Burrton, Kans.; C. E. Powell, Route 2, Wanette, Okla.; L. A. Webster, Madison, Kans.; G. B. Wooster, Box 1460, Wewoka, Okla.; W. H. Yingling, Arkansas City, Kans. *Plants* in Oklahoma, Kansas and Texas. *Capacity*, 338,000.

Clinger Oil & Gas Co., Tidioute, Pa.
Pres., W. F. Clinger. *V. P.*, George Clinger. *Supts.*, J. E. Peterson, Chas. Nason, Trumans, Forest County, Pa. *Plants* in Pennsylvania. *Capacity*, 1,000.

Clymore Co., Inc., 1204 Alamo National Bldg., San Antonio, Tex.
Pres., Garland Clymore. *Sec.*, B. S. Fenlaw. *Treas.*, R. C. Willett. *Gen. Supt.*, R. S. Wyrick, Refugio, Tex. *Ch. Chem.*, V. A. Goss, Refugio, Tex. *Ch. Engr.*, W. R. Hounsell, Refugio, Tex. *Plant Supt.*, R. S. Wyrick, Refugio, Tex. *Plant* in Texas. *Capacity*, 30,000.

Coline Gasoline Corp., Railway Exchange Bldg., Chicago, Ill.
Pres., J. H. Keefe. *V. P.'s* F. C. Ripley, Los Angeles, Calif.; H. L. Briggs, Oklahoma City, Okla. *Gen. Supt.*, H. E. Moulton. *Plant Supts.*, D. R. Van Gorder, Box

381, Torrance, Calif.; J. L. Black, Route 1, Box 411, Ventura, Calif. *Plants* in California. *Capacity*, 30,000.

Cochran & Co., John G., 676 W. Main, Sheffield, Pa.
Mgr., John G. Cochran. *Gen. Supt.*, J. C. Curtin. *Plant* in Pennsylvania. *Capacity*, 1,100 (shut down).

Coltexo Corp., Monroe, La.
Pres., F. F. Curtze. *Sec.*, Reid L. Carr. *Treas.*, George L. Bubb. *Gen. Supt.*, W. E. Reardon. *Sales Mgr.*, W. H. Anders. *Ch. Chem.*, H. J. Hunter. *Ch. Engr.*, A. T. Givens. *Plant Supts.*, J. P. Cox, Lefors, Tex.; H. E. Means, Rodessa, La. *Plants* in Texas and Louisiana. *Capacity*, 60,000.

Columbian Gasoline Corp., Monroe, La.
Pres., F. F. Curtze. *Sec.*, Reid L. Carr. *Treas.*, George L. Bubb. *Gen. Supt.*, W. E. Reardon. *Sales Mgr.*, W. H. Anders. *Ch. Chemist*, H. J. Hunter. *Ch. Engr.*, A. T. Givens. *Plant Supt.*, E. O. Nolan, Shamrock, Tex. *Plant* in Texas. *Capacity*, 5,000.

Consolidated Gasoline Co., Cisco, Tex.
Pres., and *Treas.*, A. S. Hickok, Toledo, Ohio. *V. P.*, W. G. Kirkbride, Toledo, Ohio. *Sec.*, C. F. Eisenhour, Toledo, Ohio. *Gen. Supt.*, R. L. Ponsler. *Sales Mgr.*, H. M. Condley. *Ch. Chem.*, E. N. Francis, Eastland, Tex. *Plant* in Texas. *Capacity*, 12,000.

Cook Oil Lease, Kellettville, Pa.
Owner, E. S. Collins. *Pres.*, F. R. Klinestiver, Nebraska, Pa. *Sec.*, James E. Flynn. *Sales Mgr.*, F. R. Klinestiver. *Plant Supt.*, F. Lee Dunkle, Mayburg, Pa. *Plant* in Pennsylvania. *Cpacity*, 125.

Consolidated Gas Utilities Corp., Hales Bldg., Oklahoma City, Okla.
Pres., Logan W. Cary. *V. P.'s*, E. C. Joullian; R. K. Bissell, 14 Wall St., New York City. *Sec.*, Robert LeRoy. *Treas.*, J. W. Metcalfe. *Pur. Agt.* and *Ch. Engr.*, C. S. Worley. *Supt.*, H. W. Shaffer, Wellington, Kans. *Plant* in Kansas. *Capacity*, 12,000 (shut down.

Continental Oil Co., Continental Bldg., Ponca City, Okla.
Pres., Dan Moran. *V. P.'s*, Walter Miller; Harry J. Kennedy; W. W. Bruce. *Sec.* and *Treas.*, G. F. Smith. *Gen. Supt.*, R. A. Carter. *Sales Mgr.*, O. B. Lloyd. *Pur. Agt.*, W. H. O'Connor. *Ch. Chem.*, B. H. Lincoln. *Ch. Engr.*, M. E. Clawson. *Supts.*, D. M. Brown, Lance Creek, Wyo.; A. E. Crouse, Box 96, Basile, La.; J. N. Garritson, Box A, Hobbs, N. M.; F. B. Haverfield, Box 96, Basile, La.; R. G. Kennelly, Lance Creek, Wyo.; R. A. Noah, Box 472, Britton, Okla.; C. L. Ritter, Drawer J, Billings, Okla.; J. E. Storts, Box 812, Lake Charles, La. *Plants* in Oklahoma, Louisiana, Wyoming and New Mexico. *Capacity*, 93,500.

Cowan Oil & Refining Co., 534 Bartlett Bldg., Los Angeles, Calif.
Pres., John A. Arnold. *V. P.*, Arnold Holden. *Sec.* and *Treas.*, W. G. Howard. *Plant* in California. *Capacity*, 60,000.

Crosbie, J. E., Inc., 1810 National Bank of Tulsa Bldg., Tulsa, Okla.
Pres., J. E. Crosbie. *V. P.*, W. B. Moran. *Sec.* and *Treas.*, M. E. Church. *Gen. Supt.*, Anson W. Dwen. *Plant Supts.*, B. F. Gilstrap, P. O. Box 158, St. Louis, Okla.; E. D. Egleston, P. O. Box 312, Holdenville, Okla.; D. B. Young, P. O. Box 5, Fittstown, Okla. *Plants* in Oklahoma. *Capacity*, 90,000.

D

Danciger Oil & Refineries, Inc., W. T. Waggoner Bldg., Fort Worth, Tex.
Pres., Dan Danciger. *V. P.'s*, Joe Danciger, A. Danciger, Jack Danciger. *Sec.*, J. E. Vaeth. *Treas.*, Joe Danciger. *Gen. Supt.*, W. D. McIntyre. *Sales Mgr.*, L. R. Brammer. *Pur. Agts.*, G. B. Magruder, Jr., Jay Hausman. *Ch. Chem.*, Lysle Owen. *Supts.*, F. E. Shryock, Box 1662, Pampa, Tex.; M. R. Ryan, Box 1102, Longview, Tex.; Guy Barriett, Danciger, Tex.; F. L. Abraham, Box 278, Lefors, Tex. *Plants* in Texas. *Capacity*, 60,000.

Darby Lynde Co., The, Philtower, Tulsa, Okla.
Pres., J. F. Darby. *V. P.*, V. F. Lynde, *Sec.*, S. B. Griffith. *Treas.*, C. F. Lynde. *Plant Supt.*, J. R. Gilbert. *Plant* in Texas. *Capacity*, 2,500.

Daugherty & Co., Willard Hotel, Butler, Pa.
Partnership, C. R. Daugherty and M. G. Daugherty. *Plants* in Pennsylvania. *Capacity*, 145.

Deep Oil Development Co., 812 City National Bank Bldg., Wichita Falls, Tex.
Pres., J. T. Harrell. *V. P.*, Joe A. Kell. *V. P.* and *Gen. Mgr.*, John W. Thomas. *Sec.* and *Treas.*, John C. Coffey. *Gen. Supt.*, L. F. Cox. *Supts.*, M. H. Montfort, Box 572, Archer City, Tex.; O. H. Stanbrough, Rt. 1, Iowa Park, Tex. *Plants* in Texas. *Capacity*, 8,000.

Deep Rock Oil Corp., Atlas Life Bldg., Tulsa, Okla.
Trustee, H. N. Greis. *Sec.* and *Treas.*, W. R. Francisco. *Gen. Supt.*, R. K. Huey. *Pur. Agt.*, R. G. Martin. *Ch. Engr.*, C. O. Moss. *Ch. Chem.* B. C. Frischot, Cushing, Okla. *Supts.*, George Wolterhausen, Cushing, Okla.; Elmer Singer, Shamrock, Okla. *Plants* in Oklahoma. *Capacity*, 8,700.

Del Rey Oil & Gas Co., Washington St. and Beach Ave., Venice, Calif.
Pres., A. E. Schiltz. *V. P.*, F. A. E. Lowell. *Asst. Sec.*, H. A. Wohlenberg. *Gen. Supt.*, F. A. E. Lowell. *Ch. Chem.*, Adolph Pfeil. *Plant* in California. *Capacity*, 60,000.

Dempseytown Gas Co., 78 Mill St., Port Allegany, Pa.
Pres., C. I. Crippen. *V. P.'s*, J. H. Isherwood, C. R. Beddows. *Sec.*, J. C. Forsyth. *Treas.*, C. R. Beddows. *Gen. Supt.*, E. H. Crippen. *Plants* in Pennsylvania. *Capacity*, 265.

Desdemona Gasoline Co. of Texas, 504 Capps Bldg., Fort Worth, Tex.
Pres., W. F. MacDermott. *V. P.*, Floyd Evans. *Sec.*, M. B. Todd. *Gen. Supt.*, D. H. Moss, Desdemona, Tex. *Plant* in Texas. *Capacity*, 3,000.

Devonian Oil Co., Box 1379, Tulsa, Okla.
Pres., A. W. Leonard. *V. P.*, L. C. Ritts. *Sec.*, George D. Foster. *Treas.*, L. C. Ritts. *Gen. Supt.*, E. S. Calvert. *Pur. Agt.*, H. R. Dean. *Plant Supt.*, W. A. Fosburgh, Box 106, Kellyville, Okla. *Plant* in Oklahoma. *Capacity*, 20,000.

Dinsmoor & Co., 702 Second St., St. Marys, W. Va.
Pres., W. P. Kerwood, Jr. *V. P.*, F. K. Sellers. *Sec.*, Denton Dinsmoor. *Gen. Supt.*, D. H. Israel. *Plants* in West Virginia. *Capacity*, 375.

Dun Mar Oil & Gas Co., Route 3, Fairview, W. Va.
Plant in West Virginia. *Capacity*, 50.

Duval Gasoline Co., Second National Bank Bldg., Houston, Tex.
Pres., D. W. Hovey. *V. P.*, W. J. Blue. *Sec.* and *Treas.*, E. L. Loeffler. *Plant* in Texas. *Capacity*, 10,000.

E

Eagle Gasoline Co., Philtower Bldg., Tulsa, Okla.
Pres., C. G. Tibbens. *V. P.*, F. E. Tibbens. *Sec.* and *Treas.*, W. Z. Savage. *Supt.*, Ira Cheffer. *Plant* in Oklahoma. *Capacity*, 1,000.

Eason Oil Co., Bass Bldg., Enid, Okla.
Pres., T. T. Eason. *V. P.*, L. D. Hinman. *Sec.* and *Treas.*, T. W. Eason. *Gen. Supt*, B. T. Weidner. *Sales Mgr.*, R. H. Rowland. *Pur. Agt.*, A. C. Hatton. *Ch. Chem.*, G. B. Lyon. *Supts.*, P. G. Maranville; B. T. Weidner, Crescent, Okla.; T. E. Sisk, Covington, Okla. *Plants* in Oklahoma. *Capacity*, 18,000.

East Texas Refining Co., 1405 Tower Petroleum Bldg., Dallas, Tex.
Pres., F. W. Burford. *V.P.*, John J. Thomas. *Sec.*, John R. Scott. *Treas.*, E. V. Campbell. *Sales Mgr.*, R. E. Bishop. *Pur. Agt*, W. M. Bisett. *Ch. Chem.*, H. H. Knoch. *Supt.*, C. H. Merritt, Rodessa, La. *Plants* in Arkansas and Louisiana. *Capacity*, 62,000.

Edwards (Eddie O.), R. D. No. 2, Titusville, Pa.
Plant in Pennsylvania. *Capacity*, 170.

Elsworth, Heiren & Co., Inc., Arthur, Pa.
Pres., F. M. Baker. *V. P.*, W. J. Ochs. *Sec.* and *Treas.*, J. F. Elswerth. *Plant* in Pennsylvania. *Capacity*, 400 (shut down).

Ellenberger & Sons (Wm. J.), R.F.D. 1, Karns City, Pa.
Plant in Pennsylvania. *Capacity*, 300.

Elliott Bros., R.F.D. 2, Chicora, Pa.
Plant in Pennsylvania. *Capacity*, 500.

El Paso Natural Gas Co., P. O. Box 1492, El Paso, Tex.
Pres., Paul Kayser. *V. P.'s*, C. C. Cragin, A. L. Forbes, Jr. *Sec.* and *Treas.*, J. E. Franey. *Supt.*, L. A. Beaird, Jal, New Mex. *Plant* in New Mexico. *Capacity*, 60,000.

Enfisco Oil Corp., Box 2021, Tulsa, Okla.
Pres., Edward N. Fisher. *V. P.'s*, S. S. Smith, J. F. Dittman. *Sec.*, M. Jerome. *Treas.*, L. J. Margulies. *Plant* in Oklahoma. *Capacity*, 1,500.

Equitable Gas Co., 435 Sixth Ave., Pittsburgh, Pa.
Pres., F. R. Phillips. *V. P.* and *Gen. Mgr.*, F. F. Schauer. *Sec.*, W. B. Carson. *Treas.*, C. J. Braun, Jr. *Supt. Compr. Sta.*, Judson Bonsall. *Pur. Agt.*, C. W. Lepper. *Supts.*, George M. Myers, Rogersville, Pa.; P. E. Jackson, R.F.D. No. 1, Clarksville, Pa. *Plants* in Pennsylvania. *Capacity*, 12,000.

F

Federal Oil & Gas Co., 109 N. Union St., Akron, Ohio
V. P., Dr. M. M. Bauer. *Sec.*, C. F. Schnee. *Treas.*, E. B. Gill. *Plants* in Pennsylvania and West Virginia. *Capacity*, 850.

Field, O. C., Gasoline Corp., 944 Wilshire Blvd., Los Angeles, Calif.
Pres., O. C. Field. *V. P.'s*, J. C. Burks, W. G. Metson. *Sec.* and *Treas.*, Newton J. Hale. *Supt.*, A. L. Henrickson. *Plants* in California. *Capacity*, 90,000.

Fleming, J. E., 623 N. Perry, Titusville, Pa.
Owner, J. E. Fleming. *Supt.*, George W. Miller, Grand Valley, Pa. *Plant* in Pennsylvania. *Capacity*, 500.

Forest Chemical Co., Sheffield, Pa.
Pres. and *Treas.*, C. R. McNeal. *V. P.* and *Sec.*, C. F. McNeal. *Plant* in Pennsylvania. *Capacity*, 300 (shut down.)

G

General American Refining Co., Box 776, Dallas, Tex.
Chm. of Bd., J. W. Gilliland. *Pres.*, R. G. Trippett. *Sec.* and *Treas.*, A. H. Meadows. *Plant* located in Texas. *Capacity*, 12,000.

General Petroleum Corp. of California, 1003 Higgins Bldg., Los Angeles, Calif.
Pres., A. L. Weil. *V. P.'s*, R. A. Sperry, S. J. Dickey, W. L McLaine, A. H. DeFriest, E. L. Adams. *Sec.*, D. W. Woods. *Treas.*, W. Cunningham. *Mgr. Gas Dept.*, R. C. Wheeler. *Mgr. Engr. Dept.*, V. F. Grace. *Sales Mgr.*, A. H. DeFriest. *Mgr. Laboratories*, G. F. Olsen. *Pur Agt.*, E. W. Beck. *Gen. Supt.*, P. S. Magruder, 2525 East 37th St., Vernon, Calif. *Plants* in California. *Capacity*, 225,000 (20,000 shut down).

Gilmore-Dabney, Inc., 2423 E. Twenty-eighth St., Los Angeles, Calif.
Pres., E. B., Gilmore. *Sec.* and *Treas.*, C. S. Beesemyer. *Gen. Supt.*, H. L. Eggleston. *Sales Mgr.*, J. L. Coates. *Plant* in California. *Capacity*, 30,000.

Glacier Production Co., Electric Bldg., Butte, Mont.
Pres., F. M. Kerr. *V. P.* and *Gen. Mgr.*, F. W. Bird. *Sec.* and *Asst. Treas.*, S. P. Hogan. *Treas.*, J. R. Thomas. *Supt.*, M. E. Buck. *Pur. Agt.*, W. T. Jackson. *Ch. Chem.*, E. M. Parkin. *Ch. Engr.*, H. H. Cochrane. *Plant* in Montana. *Capacity*, 16,000.

Gladewater Gasoline Co., P. O. Box 777, Gladewater, Tex.
Pres., C. R. Starnes. *V. P.*, Glenn J. Smith. *Sec.* and *Treas.*, E. L. Ames. *Ch. Chem.*, H. G. Ken. *Plant Supt.*, W. G. Maness, P. O. Box 777, Gladewater, Tex., *Plant* in Texas. *Capacity*, 10,000.

Glen Rose Gasoline Co., 311 National Bank of Tulsa Bldg., Tulsa, Okla.
Pres., M. H. Marr. *V. P.*, Paul M. Raigorodsky. *Sec.* and *Treas.*, John A. Thompson. *Gen. Supt.*, Paul Schaefer. *Sales Mgr.*, Paul M. Raigorodsky. *Pur. Agt.*, Paul Schaefer. *Plant Supt.*, J. C. Birdsall, P.O. Box 2, Rodessa, La. *Plant* in Louisiana. *Capacity*, 30,000.

Gould & Son (Nancy E.), Rt. 6, Butler, Pa.
Gen. Supt. and *Ch. Engr.*, Floyd B. Gould. *Plant* in Pennsylvania. *Capacity*, 10.

Graham Oil & Gas Co., Graham, Tex.
Pres., Philip Wiseman. *V. P.'s*, Harvey S. Mudd, L. W. Wickes. *Sec.* and *Treas.*, G. R. Paull. *Gen. Supt.*, G. R. Paull. *Sales Mgr.*, W. H. Anders. *Ch. Engr.*, F. F. Jones. *Plant* in Texas. *Capacity*, 8,000.

Great National Oil Corp., 715 City Bank Bldg., Shreveport, La.
Pres., J. T. Means, Jr. *Sec.* and *Treas.*, J. D. Blanton. *Plant* in Louisiana. *Capacity*, 15,000.

Gregg-Tex Gasoline Corp., Longview, Tex.
Pres., Clark Sample. *V. P.*, Charles Cobb, Jr., *Sec.*, W. Bruner Smith. *Treas.*, Clark Sample. *Ch. Chem.*, Charles W. Miller. *Ch. Engr.*, J. R. Epperson. *Supt.*, C. E. Wharton. *Plant* in Texas. *Capacity*, 125,000.

Grimes, Otha H., and Roy O. Neal, Kennedy Bldg., Tulsa, Okla.
Gen. Supt. and *Ch. Eng.*, Roy O. Neal. *Sales Mgr.* and *Pur. Agt.*, Otha H. Grimes. *Supt.*, A. L. Cash, Box 21, Drumright, Okla. *Plant* in Oklahoma. *Capacity*, 6,400.

Grimes, Otha H., Box 327, Tulsa, Okla.
Owner., Otha H. Grimes. *Supt.*, R. F. Chisolm, Box 231, Mt. Pleasant, Mich. *Plants* in Michigan. *Capacity*, 19,500.

Grimes, Otha H. and Charles W., Box 327, Tulsa, Okla.
Owners, Otha H. Grimes and Charles W. Grimes. *Supts.*, Joe K. Gibson, Weleetka, Okla.; W. O. Kinsey, Box 533, Okemah, Okla. *Plants* in Oklahoma. *Capacity*, 7,500.

Gulf Oil Corp., First National Bank Bldg., Tulsa, Okla.
V. P., Rush Greenslade. *Asst. Sec.*, D. B. Catterlin. *Asst. Treas.*, C. B. Clothier. *Gen. Supt.*, S. G. Sanderson. *Supt. Gaso. Plants*, H. F. Brindel. *Pur. Agt.*, V. C. Fuller. *Plants* in Oklahoma. *Capacity*, 67,300.

Gulf Refining Co., Box 1166, Pittsburgh, Pa.
Pres., J. F. Drake. *V. P.'s*, Charles B. Buerger, H. A. Gidney. *Sec.*, David Proctor. *Treas.*, J. E. Nelson. *Pur. Agt.*, C. T. Marsh. *Plants* in Arkansas, Louisiana, and Texas. *Capacity*, 62,000.

H

Hadden (James B.), Sheffield, Pa.
Plant in Pennsylvania. *Capacity*, 100.

Hanlon Gasoline Co., National Bank of Tulsa Bldg., Tulsa, Okla.
Pres., E. I. Hanlon. *V. P.'s*, J. H. Boyle, D. E. Buchanan. *Sec.*, J. H. Boyle. *Treas.*, D. E. Buchanan. *Gen. Supt.*, C. E. Wharton. *Sales Mgr.*, R. E. Miller. *Ch. Chem.*, R. W. Webber. *Plant Supt.*, A. A. Hardee, Breckenridge, Tex. *Plant* in Texas. *Capacity*, 60,000.

Hanlon Gasoline Corp. of Texas, National Bank of Tulsa Bldg., Tulsa, Okla.
Chm., E. I. Hanlon. *Pres., Sec.* and *Treas.*, J. H. Boyle. *V. P.*, D. E. Buchanan. *Gen. Supt.*, C. E. Wharton, Gladewater, Tex. *Sales Mgr.*, R. E. Miller. *Ch. Chem.*, C. E Banham. *Plant* in Texas. *Capacity*, 150,000.

Hapgood, Roswell T., & Co., 705 Security Bldg., Charleston, W. Va.
Partnership. Sec. and *Treas.*, G. E. Tribble. *Gen. Supt.*, Wiley Price, Cedar Grove, W. Va. *Plant.* in West Virginia. *Capacity*, 5,500.

Haskell Bros., Pleasantville, Pa.
Supt., William A. Haskell. *Plant* in Pennsylvania. *Capacity*, 100.

Haskell, Roth & Bayliss, Titusville, Pa.
Supt., George E. Bayliss. *Plant* in Pennsylvania. *Capacity*, 1,000.

Henaghan & Hanlon, Inc., Sistersville, W. Va.; 718 National Bank of Tulsa Bldg., Tulsa, Okla.
Pres., E. I. Hanlon. *V. P.*, E. V. Henaghan. *Sec.*, J. V. May. *Treas.*, M. P. Sexton. *Asst. Sec.-Treas.*, J. H. Boyle. *Sales Mgr.*, Ray E. Miller. *Gen. Supt.*, M. P. Sexton. *Plants* in West Virginia. *Capacity*, 30,000.

Henderson Co., The, 604 Oliver-Eakle Bldg., Amarillo, Tex.
Pres., F. C. Henderson. *V. P.*, J. Wood Glass. *Sec.* and *Gen. Mgr.*, F. C. Hall. *Treas.*, E. P. Henderson. *Ch. Chem.* and *Field Supt.*, W. R. Sever. *Mgr. Gas Dept.*, L. Milton Cox. *Plant Supts.*, C. A. Seiple, P. O. Box 106, Sanford, Tex.; George C. Bonecutter, P. O. Box 609, El Dorado, Ark. *Plants* in Texas and Arkansas. *Capacity*, 85,000.

Hercules Gasoline Co., 530 Giddens-Lane Bldg., Shreveport, La.
Pres., J. B. Beaird. *V. P.'s*, E. R. Ratcliff, Melvin F. Johnson. *Gen. Supt.*, E. E. DeBack. *Mgr.*, W. F. Hyde. *Ch. Chem.*, C. E. Coleston. *Supts.*' W. T. Bryant, Kilgore, Tex.; W. R. Brown, Kilgore, Tex. *Plant* in Texas. *Capacity*, 40,000.

Hokom, John, Oil & Gasoline Co., Ltd., 860 N. Highland Ave., Los Angeles, Calif.
Pres., J. Hokom. *V. P.*, C. M. Hokom. *Sec.*, J. H. Hokom. *Treas.*, H. Finlay. *Gen. Supt.*, M. O. White, Lawndale, Calif. *Plant* located in California. *Capacity*, 2,500.

Honolulu Oil Corp., 215 Market St., San Francisco, Calif.
Pres., A. C. Mattei. *V.P.'s*, L. A. Cranson, W. M. Alexander, A. P. Welch, W. P. Roth. *Sec.*, R. H. Wright. *Treas.*, W. P. Roth. *Pur. Agt.*, O. E. Cunningham. *Ch. Chem.*, W. H. Kraft. *Supt.*, H. S. Stark, P. O. Box H, Taft, Calif. *Plants* in California. *Capacity*, 50,000.

Hope Construction & Refining Co., 545 William Penn Way, Pittsburgh, Pa.
Pres., H. C. Cooper. *V. P.'s*, L. L. Tonkin, J. C. Chisler. *Sec.*, S. E. W. Burnside. *Treas.*, J. C. Chisler. *Gen. Supt.*, W. B. Gribble. *Ch. Chem.*, R. W. Miller. *Pur. Agt.*, Fred A. Benkert. *Ch. Engr.*, L. L. Tonkin. *Plants* in West Virginia, Pennsylvania and Ohio. *Capacity*, 109,900 (3,600 shut down).

Huber Corp., J. M., Borger, Tex.
Pres., H. W. Huber. *V. P.*, H. W. Price. *Sec.*, Walter David. *Treas.*, Walter Huber. *Gen. Supt.*, D. H. Matthews. *Pur. Agt.*, R. B. Rudgely. *Ch. Engr.*, G. Moore. *Plant Supt.*, D. H. Matthews, Borger, Tex. *Plant* in Texas. *Capacity*, 3,000.

Humble Oil & Refining Co., 1216 Main St., Houston, Tex.
Chm. of Board and *Treas.*, R. L. Blaffer. *Pres.*, H. C. Wiess. *V. P.'s*, James Anderson, E. E. Townes, John R. Suman, L. T. Barrow. *Sec.*, James S. Crate. *Comptroller*, L. H. Attwell, Jr. *Plant Supts.*, R. E. Buckner, Box 498, Overton, Tex.; W. A. Hutsell, Box 498, Overton, Tex.; F. Y. LaFayette, Box 498, Overton, Tex.; M. A. Mills, Drawer D, Neches, Tex.; A. L. Spencer, Box 1392, Breckenridge, Tex.; J. A. Lee, Box A, Bloomington, Tex.; J. E. Clayton, Rt. 1, Box 43, Corpus Christi, Tex.; R. W. Beatty, Dickinson, Tex.; W. J. McDougal, Conroe, Tex.; H. P. Elwood, Belleville, Tex.; R. W. Way, Tomball, Tex.; G. C. Patterson, East Texas Division, Overton, Tex. *Plants* in Texas. *Capacity*, 242,000.

I

Indian Territory Illuminating Oil Co., Bartlesville, Okla.
Pres., Burdette Blue. *V. P.'s*, W. A. Jones, R. L. Morton; A. V. Hoenig, F. R. Coates, R. L. Gordon, C. H. Caldwell. *Sec.*, E. B. Emenhiser. *Treas.*, C. H. Caldwell. *Gen. Supt.*, T. A. Stevens. *Sales Mgr.*, G. V. N. Yates. *Ch. Chem.*, Frank Allen. *Pur. Agt.*, C. M. Taylor. *Plant Supts.*, C. D. McReynolds, Forty-fourth St. and Oklahoma Ave., Oklahoma City, Okla.; H. P. Wingo, Oklahoma City; Dave Godsey, Oklahoma City. *Plants* in Oklahoma. *Capacity*, 151,000.

Inglewood Gasoline Corp., 650 S. Grand Ave., Los Angeles, Calif.
Pres., C. B. Edington. *V. P.*, C. B. Edington, Jr. *Sec.*, L. A. Fougler. *Gen. Supt.*, Carl Steinbeck. *Plant* in California. *Capacity*, 7,500.

Italo Petroleum Corp. of America, 391 Sutter St., San Francisco, Calif.
Pres., J. W. Pauson. *V. P.'s*, A. J. Scampini, R. A. Earle. *Compt.*, E. P. Hardenbergh. *Sec.*, R. J. Sunderhauf. *Treas.*, Hugh K. McKevitt. *Gen. Supt.*, R. A. Earle. *Plant Supt.*, Glenn Fisher, P.O. Box 57, Coalinga, Calif. *Plant* in California. *Capacity*, 300.

J

Jennings Bros. Co. (E. H.), 608 Columbia Bldg., Pittsburgh, Pa.
Pres., R. G. Jennings. *V. P.*, E. D. Jennings. *Sec.*, E. H. Jennings. *Treas.*, R. G. Jennings. *Plants* in Pennsylvania. *Capacity*, 2,250.

K

Kansas Power & Light Co., United Life Bldg., Salina, Kans.
Pres., D. E. Ackers. *V. P.*, C. E. Brock. *Sec.* and *Treas.*, H. E. Johnson, 710 N. Twelfth Blvd., St. Louis, Mo. *Plant Supt.*, H. R. Otto. *Pur. Agt.*, I. S. Stewart. *Plants* in Kansas. *Capacity*, 26,000.

Kewanee Oil Co., 2317 Fidelity-Phila. Trust Bldg., Philadelphia, Pa.
Pres., William M. Potts. *Sec.* and *Treas.*, R. B. Ashen-

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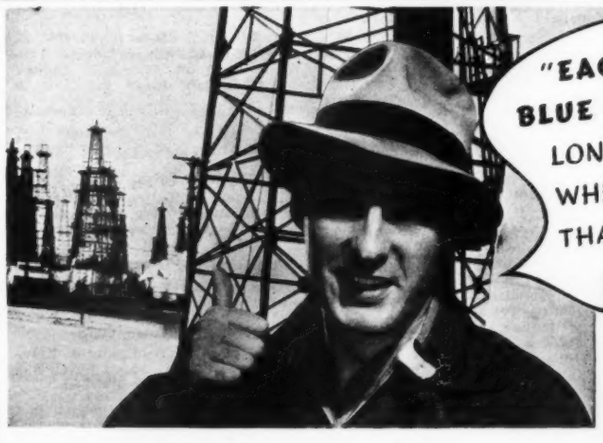

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felter. *Gen. Mgr.*, F. B. Howland. *Plant Supt.*, T. B. Steele, Robinson, Ill. *Plant* in Illinois. *Capacity*, 300.

L

La Salle Petroleum Co., 612 Wright Bldg., Tulsa, Okla.
Receivers, W. J. Schnur and Phil D. Williams. *Gen. Supt.*, Phil D. Williams. *Sales Mgr.*, Phil D. Williams. *Plant* in Texas. *Capacity*, 8,000 (shut down).

Lesseig, L., Thompson Bldg., Tulsa, Okla.
Owner, L. Lesseig. *Plant* in Oklahoma. *Capacity*, 300.

Lisbon Gasoline Co., Inc., 229 Ricou-Brewster Bldg., Shreveport, La.
Pres., L. J. Dykes. *V. P.'s*, G. W. James, D. W. Harris. *Sec.*, T. J. Heard. *Treas.*, B. R. Muirhead. *Gen. Supt.*, D. L. Edmondson. *Plant Supt.*, D. L. Edmondson, P.O. Box 464, Henderson, Tex. *Plants* in Texas. *Capacity*, 60,000.

Lomita Gasoline Co., Box 851, Long Beach, Calif.
Pres., C. M. Cohen. *V. P.'s*, A. A. Jergins; T. A. Campbell. *Sec.* and *Treas.*, F. S. Wade. *Gen. Supt.*, and *Sales Mgr.*, L. V. Cassaday. *Pur. Agt.*, J. Bucklin. *Ch. Engr.*, T. A. Campbell. *Supts.*, J. H. Clark, Box 851, Long Beach, Calif.; M. S. Hubbell, Route 2, Box 522, Bakersfield, Calif. *Plants* in California. *Capacity*, 90,000.

Lone Star Gas Co., 1915 Wood St., Dallas, Tex.
Pres., L. B. Denning. *V. P.'s*, R. A. Crawford, F. L. Chase D,. A. Hulcy, E. F. Schmidt. *Sec.* and *Treas.*, D. L. Cobb. *Gen. Supt.*, J. R. Jarvis. *Sales Mgr.*, A. F. Garrett. *Ch. Chem.*, P. C. Coffin. *Pur. Agt.*, B. R. Newbery. *Ch. Engr.*, J. L. Foster. *Plant Supts.*, F. H. Townsen, Gordon, Tex.; J. F. Francis, Rt. 1, Cisco, Tex.; H. C. Wells, Hollis, Okla.; J. W. Phillips, Petrolia, Tex.; J. M. Kindle, Box 236, Trinidad, Tex. *Plants* in Oklahoma and Texas. *Capacity*, 97,000.

Lone Star Gasoline Co., 1915 Wood St., Dallas, Tex.
Pres., L. B. Denning. *V. P.'s*, R. A. Crawford, F. L. Chase, D. A. Hulcy, E. F. Schmidt. *Sec.* and *Treas.*, D. L. Cobb. *Gen. Supt.*, J. R. Jarvis. *Sales Mgr.*, A. F. Garrett. *Ch. Chem.*, Archie Robinson. *Pur. Agt.*, B. R. Newbery. *Ch. Engr.*, J. L. Foster. *Plant Supts.*, Harry Wheeldon, P. O. Box 431, Ranger, Tex.; J. A. Bates, P. O. Box 1452, Breckinridge, Tex. *Plants* in Texas. *Capacity*, 106,500.

Los Nietos Production & Refining Co., Ltd., 714 W. Olympic Blvd., Los Angeles, Calif.
Pres., C. E. Doheny. *V. P.'s*, Olin Wellborn III, C. W. Smith, R. S. Lytle. *Sec.*, G. W. Johnson, Jr. *Treas.*, Olin Wellborn III. *Pur. Agt.*, W. H. Pierce. *Plant Supt.*, George W. Thompson, Avenal, Calif. *Plant* in California. *Capacity*, 100,000.

Louisville Gas & Electric Co., 311 W. Chestnut St., Louisville, Ky.
Pres., T. B. Wilson. *V. P.*, A. W. Lee. *Sec.*, J. J. McKenna. *Gen. Supt.*, J. A. Yunker. *Pur. Agt.* G. Davies. *Supt.*, H. D. Robb, Winchester, Ky. *Plant* in Kentucky. *Capacity*, 1,500.

Louisiana Iron & Supply Co., 2925 Mansfield Road, Shreveport, La.
Pres., Sam Y. Dorfman. *V. P.'s*, Joe Gold, Mrs. Minnie Goldman. *Sec.*, Sam Sklar. *Treas.*, Sam Sklar. *Gen. Supt.*, G. R. Perry. *Pur. Agt.*, P. R. Walker. *Plants* located in Arkansas. *Capacity*, 6,000.

M

Magnolia Petroleum Co., Magnolia Bldg., Dallas, Tex.
Pres., D. A. Little. *V. P.'s*, L. S. Sinclair; M. J. McLaughlin; W. H. Francis; C. L. Gladden; Fred M. Lege, Jr.; J. L. Latimer; J. W. Newton. *Sec.*, G. L. Tate. *Treas.*, W. L. Holmes. *Gen. Supt.*, R. D. Hanley. *Sales Mgr.*, George Miller. *Pur. Agt.*, J. P. David. *Ch. Chem.*, H. L. Baker. *Ch. Engr.*, C. V. Edwards, Jr. *Supts.*, Charles F. Koch, Box 838, Electra, Tex.; C. L. Simmons, Box 310, Kermit, Tex.; J. F. Lewis, Drawer D, Oilton, Okla.; M. C. Aker, Box 538, St. Louis, Okla.; J. A. Upton, Box 668, Healdton, Okla.; Guy E. Cox, Box 1382, Pampa, Tex.; O. B. Zeek, Box 1172, Stonewall, Okla.; V. L. Dickinson, Box 231, El Dorado, Ark.; J. L. Brown, Drawer M, Olden, Tex. *Plants* in Texas, Oklahoma and Arkansas. *Capacity*, 163,700 (6,500 shut down).

Mahutska Oil Co., Robinson State Bank Bldg., Robinson, Ill.
Pres., Alex U. McCandless. *V. P.*, L. G. Niehoff. *Sec.* John A. Byerly. *Treas.*, L. G. Niehoff. *Gen. Supt.*, F. B. Barnes. *Sales Mgr.*, Alex U. McCandless. *Plant Supts.*, S. H. Correll, Robinson, Ill.; Fred Boyd, Oblong, Ill. *Plants* in Illinois. *Capacity*, 1,000.

Manhattan Gasoline Co., National Bank of Tulsa Bldg., Tulsa, Okla.
Pres., J. H. Boyle. *V. P.'s*, D. E. Buchanan, R. E. Miller. *Chm.*, E. I. Hanlon. *Sales Mgr.*, R. E. Miller. *Gen. Supt.*, C. E. Wharton. *Plant Supt.*, E. H. Almond, Sinton, Tex. *Plant* in Texas. *Capacity*, 30,000.

Marr National Gasoline Co., 516 Peoples National Bank Bldg., Tyler, Tex.
Pres., Jack Marr. *V. P.*, W. O. Stowell. *Sec.* and *Treas.*, F. J. Morris. *Supt.*, W. O. Stowell, Box 482, Henderson, Tex. *Plant* in Texas. *Capacity*, 2,000.

Mars Co., The, 308 Seneca St., Oil City, Pa.
Pres., George E. Welker. *V. P.*, A. C. Burwell. *Sec.* and *Treas.*, H. S. Ross. *Sales Mgr.*, C. P. Garvey. *Ch. Chem.*, J. R. Fay. *Pur. Agt.*, M. J. Connor. *Ch. Engrs.*, W. C. McDonald, Hampton plant, Hampton Station, Oil City, Pa.; J. J. Kane, Lewis Run plant, Lewis Run, Pa.; W. E. Huggler, Strong plant, Van, Pa.; N. C. Gifford, Miola plant, Box 44, Clarion, Pa.; E. L. Betz, Queen plant, East Hickory, Pa. *Plants* in Pennsylvania. *Capacity*, 21,300 (9,800 shut down).

McBride, W. C., Inc., 2101 Missouri Pacific Bldg., St. Louis, Mo.
Pres., B. O. Mahaffey. *V. P.*, C. F. Buchner. *Sec.* and *Treas.*, E. R. Christman. *Ch. Engr.*, H. L. Crisman. *Plant Supt.*, E. R. Davis, Avant, Okla. *Plant* in Oklahoma. Capacity, 1,500.

Melrose Oil & Gas Co., F. & P. Bank Bldg., Sistersville, W. Va.
Pres., Neal K. Wilson, Cuba, N. Y. *V. P.*, John P. Flynn. *Sec.*, Louis N. Thomas, Fort Worth, Tex. *Treas.*, Neal K. Wilson. *Gen. Supt.*, R. U. Adams, Sistersville, W. Va. *Supts.*, Claude H. Gorby, Sistersville, W. Va.; S. M. Tallurace, Middlebourne, W. Va. *Plants* in West Virginia. *Capacity*, 25.

Mid-Continent Petroleum Corp., Cosden Bldg., Tulsa, Okla.
Pres., Jacob France. *V. P.*, G. O. Moody. *Asst. Sec.*, A. D. Kneale. *Treas.*, Charles Klein. *Gen. Supt.*, F. E. Kearney. *Pur. Agt.*, C. A. Prichard. *Plant Supts.*, F. C. Bach, Rt. 3, Box 85-A, Bristow, Okla.; Ed. Burgess, Box 97, Leonard, Okla.; R. H. Corbin, Box 387, Morris, Okla.; J. A. Blakemore, Box 788, Cromwell, Okla.; C. C. Wolford, Box 11, Stroud, Okla.; T. G. Merritt, Box 4384, Oklahoma City, Okla. *Plants* in Oklahoma. *Capacity*, 82,000.

Mid-Co Oil & Refining Co., Corsicana, Tex.
Pres., C. A. Middleton. *Gen. Supt.*, Elliot Middleton. *Plant* in Texas. *Capacity*, 10,000.

Midland Gasoline Co., The, P. O. Box 271, Conroe, Tex.
Pres., and *Treas.*, Henry M. Brown. *V. P.* and *Sec.*, H. T. McGown. *Ch. Chem.*, W. L. Coffey. *Ch. Engr.*, R. C. Coffman. *Supt.*, A. L. Howell. *Plant* in Texas. *Capacity*, 20,000.

Mockley Petroleum Co., Fry, Tex.
Pres., M. E. Mockley. *Sec.*, and *Treas.*, Tom Edwards. *Plant* in Texas. *Capacity*, 20,000.

Moore, Way & Harrison, Titusville, Pa.
Plant in Pennsylvania. *Capacity*, 150.

Morgan & Montgomery, Pine Hollow Road, McKees Rocks, Pa.
Partnership, J. B. Morgan and S. H. Morgan. *Gen. Supt.*, J. B. Montgomery. *Plant* in Pennsylvania. *Capacity*, 100.

Mountain States Oil Corp., The, Kellof Bldg., Trinidad, Colo.
Pres., C. W. Barnholt. *V. P.'s*, H. G. Stevenson, Rt. 1, Trinchera, Colo.; A. B. Graven, 17 E. 42nd St., New York City; E. A. Barnholt. *Sec.*, H. G. Stevenson. *Treas.*, C. W. Barnholt. *Plant* in Colorado. *Capacity*, 6,000.

N

Neal Gasoline Co., P. O. Box 1926, Tulsa, Okla.
Pres., Roy O. Neal. *Treas.*, H. B. Neal. *Plant Supts.*, L. W. Blair, Box 186, Osage, Okla.; F. Hamilton, Copan, Okla. *Plants* in Oklahoma. *Capacity*, 5,400.

Nine Oaks Gasoline Corp., Box 628, Electra, Tex.
Pres., J. H. Massie. *V. P.*, R. L. Riner. *Sec.* and *Treas.*, E. B. Prince. *Plant* in Texas. *Capacity*, 1,000.

Nolan & Lamberton, 212 S. Olympia, Tulsa, Okla.
Partnership, Nolan Oil & Gas Co., Chanute, Kans., and J. S. Lamberton, Tulsa, Okla. *Supt.*, W. E. Russell, Oblong, Ill. *Plant* in Illinois. *Capacity*, 50.

North Penn Gas Co., 78 Mill St., Port Allegany, Pa.
Pres., C. I. Crippen. *V. P.'s*, J. H. Isherwood, C. R. Beddows. *Sec.*, J. C. Forsyth. *Treas.*, C. R. Beddows. *Plant* in Pennsylvania. *Capacity*, 600 (shut down).

Northern Natural Gas Co., Aquila Court Bldg., Omaha, Neb.
Pres., F. J. Brooks. *Gen. Supt.*, S. W. Taft. *Pur. Agt.*, C. F. Martin. *Ch. Engr.*, H. J. Carson. *Supt.*, E. S. Newton, Box 5, Hugoton, Kans. *Plant* in Kansas. *Capacity*, 12,000.

Norwalk Co., The, 634 S. Spring St., Los Angeles, Calif.
Pres., Lionel T. Barneson. *V. P.'s*, H. J. Barneson, J. L. Barneson. *Sec.*, W. E. Kropp. *Gen. Mgr.*, L. L. Aubert. *Asst. to Gen. Mgr.*, H. M. Paulsen. *Pur. Agt.*, John C. Penn. *Supts.*, K. E. Grigsby, Box "O," Santa Fe Springs, Calif.; Jack Brennan, Box 688, Maricopa, Calif. *Plants* in California. *Capacity* 70,000.

O

Ohio Oil Co., The, 539 S. Main St., Findlay, Ohio
Pres., O. D. Donnell. *V. P.'s*, C. L. Fleming, John McFayden, W. W. Fleming, F. R. Clark, J. C. Donnell, R. C. Gwilliam, G. E. McCullough. *Sec.*, E. B. Redpath. *Treas.*, F. A. Bilistone. *Pur. Agt.*, C. S. Sherk. *Plant Supts.*, E. B. Charlton, Louisiana division, Shreveport, La.; I. L. Kerr, Illinois division, Robinson, Ill.; George Sowards, Wyoming division, Casper, Wyo.; S. A. Smith, California division, Los Angeles, Calif.; W. E. Smith, Texas division, Eliasville, Tex. *Plants* in Louisiana, Illinois, Texas and California. *Capacity*, 66,360 (8,600 shut down).

Ohio Producing & Refining Co., The, 1405 East Sixth St., Cleveland, Ohio
Pres., John J. McMahon. *V. P.*, W. G. Hagan. *Sec.* and *Treas.*, W. G. Rogers. *Pur. Agt.*, A. T. Code. *Plant Supt.*, C. F. Turner, 1405 E. Sixth St., Cleveland, Ohio. *Plant* in Ohio. *Capacity*, 6,000.

Oil & Gas Co., The, 318½ Juliana St., Parkersburg, W. Va.
Pres., Reese Blizzard. *V. P.'s*, A. D. Ireland and C. M. Bennett. *Sec.* and *Treas.*, Ross Wells. *Plant Supt.*, W. O. Wells, Harrisville, W. Va. *Plant* in West Virginia. *Capacity*, 250.

Oil State Gasoline Co., Oscar R. Howard Bldg., Tulsa, Okla.
Pres., Oscar R. Howard. *V. P.*, W. D. Abbott. *Sec.*, W. J. Zollinger. *Gen. Supt.*, Charles W. Stepp. *Plant* Supts., John L. Garrison, Jenks, Okla.; Clarence W. Stepp, Yale, Okla. *Plants* in Oklahoma. *Capacity*, 2,700.

Oklahoma Gasoline Plants, Inc., American National Bank Bldg., Sapulpa, Okla.
Pres., L. B. Jackson. *V. P.*, E. E. Thompson. *Sec.*, W. Maurer. *Treas.*, L. B. Jackson, Jr. *Gen. Supt.*, E. E. Fisher. *Ch. Engr.*, G. L. Newman. *Plant Supt.*, G. L. Newman, Box 707, Drumright, Okla. *Plant* in Oklahoma. *Capacity*, 10,000.

Oklahoma Utilities Co., Box 690, Bristow, Okla.
Pres., C. D. Perry. *V. P.*, R. W. Booze. *Sec.* and *Treas.*, Joseph A. Staples, Jr. *Pur. Agt.*, V. L. Wilson. *Plant Supt.*, A. C. Wright, Box 690, Bristow, Okla. *Plant* in Oklahoma. *Capacity*, 5,000.

Owens, Libbey-Owens Gas Dept., P. O. Box 1375, Charleston, W. Va.
Gen. Mgr., W. E. Spalding. *Gen. Supt.*, F. F. Ketchum. *Pur. Agt.*, L. L. Kohlbecker. *Sales Mgr.*, F. F. Ketchum. *Ch. Engr.*, W. B., Strong. *Plant Supt.*, F. F. Ketchum, Box 1375, Charleston, W. Va. *Plant* in West Virginia. *Capacity*, 10,000.

P

Pacific Western Oil Corp., 1060 Subway Terminal, Los Angeles, Calif.
Pres., W. G. Skelly. *V. P.'s*, H. M. Macomber, Emil Kluth. *Sec.*, Charles F. Krug, Jr. *Treas.*, Harold L. Rowland. *Gen. Supt.*, Ben A. Koehler. *Pur. Agt.*, C. A. Jackson. *Ch. Engr.*, W. F. Crane. *Plant Supts.*, J. B. Norton, Goleta, Calif.; B. S. Anderson, Ventura, Calif. *Plants* in California. *Capacity*, 30,000.

Pala Oil Co., Inc., Mooringsport, La.
Pres., F. L. Wiegand. *V. P.*, J. M. Post. *Sec.* and *Treas.*, T. M. Hope. *Gen. Supt.*, C. P. Hanlen, Mooringsport, La. *Plant* in Louisiana. *Capacity*, 300.

Panhandle Eastern Pipe Line Co., 101 W. Eleventh St., Kansas City, Mo.
Pres., Joe D. Creveling. *V. P.*, Burt R. Day. *Sec.*, Leith V. Watkins. *Treas.*, Louis F. Sperry. *Gen. Supt.*, G. T. Koch. *Pur. Agt.*, S. A. Taylor. *Plant* in Kansas. *Capacity*, 75,000.

Parade Gasoline Co., Inc., 421 Commercial National Bank Bldg., Shreveport, La.
Pres., J. B. Atkins. *V. P.'s*, H. L. Hunt, D. P. Hamilton. *Asst. Sec.* and *Treas.*, R. A. Worley. *Gen. Supt.*, E. L. Clover. *Ch. Engr.*, E. A. Slade. *Plant Supt.*, E. L. Clover, P.O. Box 528, Overton, Tex. *Plant* in Texas. *Capacity*, 110,000.

Peppers Gasoline Co., Box 86, Oklahoma City, Okla.
Pres., Charles C. Peppers. *Sec.* and *Treas.*, H. H. Champlin. *Supt.*, J. C. McConnico. *Plants* in Oklahoma. *Capacity*, 65,000.

Phillips Petroleum Co., Phillips Bldg., Bartlesville, Okla.
Pres., Frank Phillips. *V. P.'s*, K. S. Adams; Don Emery; G. G. Oberfell; H. E. Koopman; C. P. Dimit; M. P. Youker; F. E. Rice; J. M. Sands; C. R. Musgrave; A. M. Hughes; H. A. Trower; George R. Baker. *Sec.* and *Asst. Treas.*, B. F. Stradley. *Treas.*, R. M. Riggins. *Gen. Supt.*, F. S. Gleason. *Sales Mgr.*, A. M. Hughes. *Pur. Agt.*, H. E. Koopman. *Ch. Engr.*, A. H. Riney. *Dist. Supts.*, Oklahoma, E. L. Utsinger, Bartlesville, Okla.; Western, A. W. Paris, Box 666, Crane, Tex.; Panhandle, Rex McRoy, Box 358, Phillips, Tex.; Pampa, Tex., W. R. Barrett, Route 2, Pampa, Tex.;

Central Texas., L. B. Wood, Box 1332, Breckenridge, Tex. *Supts.*, R. K. McConnell, Box 989, Oklahoma City, Okla.; J. P. Weatherall, Box 989, Oklahoma City, Okla.; Carl Fisher, Box 989, Oklahoma City, Okla.; L. P. Clarke, Box 4-A, Route 1, Kaw, Okla.; W. R. Dickens, Box 350, Edmond, Okla.; L. V. Miller, Box 37, Bryant, Okla.; W. M. Zoller, Drawer B, Snomac, Okla.; J. H. Oliver, 1329 N. Okmulgee, Okmulgee, Okla.; R. L. Ford, Box 517, Fairfax, Okla.; C. E. Thomas, Box 967, Wetumka, Okla.; R. L. Stewart, Box 60, Wewoka, Okla.; C. Heironimous, Box 379, Eunice, N. M.; W. W. Ford, Box 66, Goldsmith, Tex.; A. C. Brock, Drawer PP, Hobbs, N. M.; J. L. Carroll Box 66, Penwell, Tex.; W. D. Kirkpatrick, Box 666 Crane, Tex.; A. F. Lasater, Box 358, Phillips, Tex. H. M. Rapp, Box 358, Phillips, Tex.; C. A. Thorne, Box 358, Phillips, Tex.; O. J. Brazil, Box 358, Phillips, Tex.; J. E. Thompson, Box 358, Phillips, Tex.; Walter Beets, Box 358, Phillips, Tex.; E. R. Martin, Box 358, Phillips, Tex.; B. V. Wallis, Box 358, Phillips, Tex.; W. R. Barrett, Route 2, Pampa, Tex.; Homer Gibson, Route 2, Pampa, Tex.; H. F. Magerkurth, Route 2, Pampa, Tex.; E. E. Traywick, Route 2, Pampa, Tex.; W. C. Boatwright, Route 2, Pampa, Tex.; John Rickard, Route 2, Pampa, Tex.; J. F. Waters, Eliasville, Tex.; F. B. Joyce, Frankell, Tex.; J. F. Steed, South Bend, Tex.; J. M. Williams, Ibex, Tex.; R. C. Mason, Box 7, Kildare, Tex.; L. E. Cates, Box 507, Pioneer, Tex.; J. K. Gibson, Box 177, Pasadena, Tex.; C. C. McIntosh, Drawer 7, Sunray, Tex. *Plants* in Oklahoma, Texas and New Mexico. *Capacity* 1,352,500.

Pittsburgh Oil & Gas Co., 1005 Farmers Bank Bldg., Pittsburgh, Pa.

Pres., E. B. Reeser. *V. P.'s* James A. Dunn, D. L. Frawley, H. R. Jackson. *Sec.*, James A. Dunn. *Treas.*, J. T. Furlong. *Gen. Supt.*, H. R. Jackson. *Plant Supts.*, C. A. Cousten, Middlebourne, W. Va.; Arthur Cousten, Macfarlan, W. Va.; V. P. Stover, Sycamore Valley, Ohio.; R. A. Bookman, Schley, Ohio.; C. R. Jeannerat, Clarion, Pa.; W. M. Holly, Butler, Pa. *Plants* in West Virginia, Ohio and Pennsylvania. *Capacity*, 2,200 (1,500 shut down).

Portex Oil Corp., Portland, Ore.

Pres., H. A. Stebbinger. *Plant* in Texas. *Capacity*, 15,000.

Powers, M. F., Chestnut & Smith Bldg., Tulsa, Okla.

Owner, M. F. Powers. *Sales Mgr.*, E. C. Sager. *Ch. Chem.*, J. W. Edwards. *Pur. Agt.*, F. George Heinze. *Plant Supt.*, L. E. Flanagan, Box 136, Depew, Okla. *Plant* in Oklahoma. *Capacity*, 4,000.

Portland Gasoline Co., 1208 Public Service Bldg., Portland, Ore.

Pres., Chester A. Sheppard. *V. P.*, Franklin T. Griffith. *Sec.*, Hilmar Papst. *Treas.*, R. J. Hagan. *Gen. Supt.*, K. W. Bunch, Box 2142, Pampa, Tex. *Pur. Agt.*, A. L. Prigmore. *Ch. Chem.*, M. A. Heath. *Ch. Engr.*, B. G. Harris. *Plant* in Texas. *Capacity*, 30,000.

Powers & Quinlan, 624 S. Cheyenne Ave., Tulsa, Okla.

Partners, M. F. Powers and Felix Quinlan, Jr. *Pur. Agt.*, F. George Heinze. *Supt.*, Felix Quinlan, Jr., Beggs, Okla. *Plants* in Oklahoma. *Capacity*, 1,000 (shut down).

President Oil Co., Emlenton, Pa.

Pres., H. J. Crawford. *V. P.*, T. P. Gregory. *Sec.* and *Treas.*, J. E. Taylor. *Gen. Supt.*, J. S. Beals. *Supts.*, F. G. McCord, Emlenton, Pa.; S. Smith, Venus, Pa.; Lloyd L. Henry, Parker, Pa. *Plants* in Pennsylvania. *Capacity*, 600.

Preston Oil Co., The, Kanawha Valley Bldg., Charleston, W. Va.

Pres., Charles A. Munroe. *V. P.'s*, Don M. Wilson, Charles F. Huff, Ralph N. Parks. *Sec.*, William M. Falion. *Treas.*, N. E. Shupe. *Sales Mgr.*, Robert M. Clarks. *Gen. Supt.*, Roy A. Schuster. *Supts.*, Lee Myers, R.F.D. No. 2, Summerfield, Ohio; Wilbur L. English, Box 304, Medina, Ohio; J. W. Dumbaugh, Pavonia, Ohio; W. P. Caley, Sugar Grove, Ohio; L. A. Chrisman, Homer, Ohio. *Plants* in Ohio. *Capacity*, 41,000.

Pure Oil Co., The, 35 E. Wacker Drive, Chicago, Ill.

Pres., Henry M. Dawes. *V. P.'s*, R. W. McIlvain; C. B. Watson; N. H. Weber; Rawleigh Warner; L. S. Wescoat. *Sec.*, L. S. Wescoat. *Treas.*, Rawleigh Warner. *Gen. Supt.*, R. H. Carr. *Sales Mgr.*, R. P. Baker. *Pur. Agt.*, G. L. Parsons. *Ch. Chem.*, C. R. Wagner. *Ch. Engr.*, Y. Neal. *Supts.*, C. M. Downing, Drumright, Okla.; Robert Burris, Oilton, Okla.; Jack Swift, Dawes, W. Va.; J. E. McCurry, Seminole, Okla.; John Prater, Van, Tex. *Plants* in Oklahoma, Texas and West Virginia. *Capacity*, 45,200.

R

Rancho Gasoline Corp., Room 1106, 417 S. Hill St., Los Angeles, Calif.

Pres., R. E. Bering. *V. P.'s*, P. M. Longan; H. W. Parmelee. *Sec.* and *Treas.*, John M. Longan. *Ch. Engr.*, H. W. Parmelee. *Supt.*, Eugene Tays, 10915 Duncan Ave., Compton, Calif. *Plant* in California. *Capacity*, 15,000.

Red Brush Oil Co., 10 Walnut St., Tidioute, Pa.

Gen. Mgr., C. E. Gesin. *Plant* in Pennsylvania. *Capacity*, 40.

Reno Oil Co., Wells Bldg., Sistersville, W. Va.

Pres., J. P. Flynn. *V. P.*, T. B. Gregory. *Sec.-Treas.*, W. R. Reitz. *Gen. Supt.* and *Pur. Agt.*, J. P. Flynn. *Supts.*, A. C. Mercer, Ellenboro, W. Va.; John McGuirk, R.F.D., Harrisville, W. Va.; Otto Woodburn and S. G. Hissam, R.F.D., Sistersville, W. Va.; C. E. Eddy, Wade, Ohio. *Plants* in West Virginia and Ohio. *Capacity*, 312.

Reserve Gas Co., 545 William Penn Way, Pittsburgh, Pa.

Pres., J. French Robinson. *V. P.*, G. A. Kinley. *Sec.*, S. E. W. Burnside. *Treas.*, J. C. Chisler. *Gen. Supt.*, W. B. Gribble. *Ch. Chem.*, R. W. Miller. *Pur. Agt.*, Fred A. Benkert. *Ch. Engr.*, L. L. Tonkin. *Plant* in West Virginia. *Capacity*, 20,000.

Rice Ranch Oil Co., 124 W. Fourth St., Los Angeles, Calif.

Pres., J. C. Netz. *V. P.'s*, Emil Kirchner, F. H. Powell. *Sec.*, I. M. Hine. *Plant Supt.*, George Holmes, Box 31, Santa Maria, Calif. *Plant* in California. *Capacity*, 5,000.

Richfield Oil Corp., 555 S. Flower St., Los Angeles, Calif.

Chm. Bd. Dir., H. F. Sinclair. *Chm. Fin. Com.*, W. Alton Jones. *Pres.*, Chas. S. Jones. *V. P.'s*, W. T. Dinkins, A. M. Kelly. *Sec.*, Cleve B. Bonner. *Treas.*, M. Richard Gross. *Asst. Sec.* and *Asst. Treas.*, E. B. Downey. *Pur. Agt.*, H. H. Kelly. *Supt.*, C. E. Gotterba. *Mgr. Gas Oper.*, H. R. Linhoff. *Ch. Chem.*, E. P. Valby. *Ch. Engr.*, M. L. Arnold. *Supts.*, A. Enoch, Box 470, Long Beach, Calif.; I. M. Bumgardner, Box "K," Taft, Calif.; W. A. Jamfrey, Box 569, Ventura, Calif. *Plants* in California. *Capacity*, 125,000 (30,000 shut down).

Rodgers, M. C. and G. K., Benedum-Trees Bldg., Pittsburgh, Pa.

Partnership, M. C. Rodgers and G. K. Rodgers. *Plant* in West Virginia. *Capacity*, 500.

Roeser & Pendleton, Inc., 613 Fort Worth Club Bldg., Fort Worth, Tex.

Pres., Charles F. Roeser. *V. P.* and *Treas.*, Marshall R. Young. *Sec.* and *Sales Mgr.*, A. M. Brackett. *Asst. Sec.*, P. R. Walker. *Supts.*, R. C. Hammock; C. A. Davis, Albany, Tex. *Plants* in Texas. *Capacity*, 34,000.

Rudco Oil & Gas Co., Box 2018, Tyler, Tex.

Pres. and *Treas.*, I. Rudman. *V. P.*, Y. Scrinopskie. *Sec.*, R. Rudman. *Gen. Supt.*, N. W. Rudman. *Ch. Engr.*, A. C. Moore. *Plant* in Texas. *Capacity*, 5,000.

S

Sabine Valley Gasoline Co., Inc., First National Bank Bldg., Shreveport, La.

Pres., H. R. Dickerson. *V. P.*, Mrs. Laurice W. Dickerson. *Sec.*, Mrs. Willie D. Wilson. *Treas.*, H. R. Dickerson. *Ch. Engr.*, H. H. Beeson. *Plant Supt.*, D. E. Farris, Box 1267, Longview, Tex. *Plant* in Texas. *Capacity*, 40,000.

Say, George K., Estate, Rt. 2, Karns City, Pa.

Sec. and *Treas.*, Bertha E. Say. *Plant* in Pennsylvania. *Capacity* 35.

Shamrock Oil & Gas Corp., The, Amarillo Bldg., Amarillo, Tex.

Pres., John J. Sheerin. *V. P.* and *Sec.*, Robert T. Wilson. *V. P.* and *Treas.*, H. C. Fownes, II. *Sales Mgr.*, R. B. Wolf. *Pur. Agt.* and *Supt.*, E. C. Will, Sunray, Tex. *Ch. Engr.*, F. B. Mack. *Supt.*, H. U. Cook, Lefors, Tex. *Plants* in Texas. *Capacity*, 91,000.

Shell Oil Co., 1008 W. Sixth St., Los Angeles, Calif.

Pres., S. Belither. *V. P.'s*, D. Heggie, E. F. Davis, G. H. Van Senden, W. P. Durkee, J. U. Stair, F. A. C. Guepin. *Sec.*, A. R. Bradley. *Treas.*, D. Heggie. *Pur. Agt.*, J. S. Story. *Gen. Supt. of Gaso. Plants*, Robert Tulin. *Plants* in California. Capacity, 274,500.

Shell Petroleum Corp., Shell Bldg., St. Louis, Mo.

Pres., Alexander Fraser. *V. P.'s*, R. B. Roark, Tulsa, Okla.; A. J. Galloway, Houston, Tex. *Gen. Supt.*, T. R. Goebel. *Sales Mgr.*, P. E. Lakin. *Pur. Agt.*, C. B. Singleton. *Plant Supervisor*, R. E. Baker. *Supts.*, B. F. Briley, P. O. Box 788, Oxford, Kans.; S. W. Craig, P. O. Box 398, Tonkawa, Okla.; C. J. Goldston, R. R. 2, Pampa, Tex.; C. E. Haines, P. O. Box 78, Orlando, Okla.; R. H. Medler, P. O. Box 549, Drumright, Okla.; C. E. Smith, P. O. Box 38, Skellytown, Tex. *Plants* in Kansas, Louisiana, Oklahoma and Texas. *Capacity*, 134,000 (22,500 shut down).

Signal Oil & Gas Co., 811 W. Seventh St., Los Angeles, Calif.

Pres., S. B. Mosher. *V. P.'s*, R. H. Green, O. W. March. *Sec.* H. J. March. *Treas.* J. H. Rounsavell. *Gen. Supt.*, R. H. Green. *Pur. Agt.*, J. F. Thies. *Ch. Engr.*, G. L. Young. *Supts.*, R. W. Heath, Long Beach, Calif.; W. Greenfield, Long Beach, Calif. *Plants* in California. *Capacity*, 120,000 (15,000 shut down).

Sinclair Prairie Oil Co., Sinclair Bldg., Tulsa, Okla.

Pres., H. L. Phillips. *V. P.*, W. W. Baker. *Sec.*, A. E. Barrus. *Treas.*, A. E. Barrus. *Gen. Supt.*, C. L. Brown. *Sales Mgr.*, A. T. Scherer. *Ch. Chem.*, J. L. Gallagher. *Pur. Agt.*, H. A. Woodard. *Ch. Engr.*, E. A. Wooden. *Plant Supts.*, Geo. H. Youker, R.F.D. 1, Drumright, Okla.; W. D. Dolan, Box 578, Shamrock, Okla.; B. C. Sharrett, Box 368, Covington, Okla.; L. M. Kelsey, Box 6, Shidler, Okla.; L. N. Yates, Box E, Kenbro, Kans.; F. B. Pearce, Box 1070, Seminole, Okla.; L. F. Kneeland, Box 871, Seminole, Okla.; K. R. Elliott, Box 80, St. Louis, Okla.; L. C. Van Cleave, Box 4188, Capitol Hill, Oklahoma City, Okla.; C. J. Tighe, Box 1674, Longview, Tex.; V. H. Aker, Drawer CC, Arp, Tex.; Steel B. White, Drawer B, Baroil, Wyo.; Steel B. White, Box 67, Columbine, Wyo. *Plants* located in Oklahoma, Kansas, Texas and Wyoming. *Capacity*, 453,200.

Skelly Oil Co., Tulsa, Okla.

Pres., W. G. Skelly. *V. P.'s* C. C. Herndon, H. M. Stalcup. *Sec.* and *Treas.*, F. T. Hopp. *Gen. Supt.*, J. W. Vaiden. *Pur. Agt.*, F. W. Robertson. *Plant Supts.*, P. E. Stephenson, Box 178, Stinnett, Tex.; A. H. Bazell, Box 816, Burkburnett, Tex.; J. T. Crawford, Box 128, Skellytown, Tex.; G. E. Canaday, Box 236, Cunningham, Kans.; John Rush, Box 288, Eunice, N. Mex.; C. Lesher, Rt. 2, Fairfax, Okla.; H. E. Chambers, Box 157, Lyman, Okla.; G. L. Cradduck, Rt. 2, Jennings, Okla.; C. N. Smith, Box 37, Carter Nine, Okla.; L. Barrett, Box 128, Skellytown, Tex.; C. A. Holmes, Box 511, Seminole, Okla.; L. J. Belanger, Box 168, Slick, Okla.; R. E. Bullick, Box 128, Skellytown, Tex.; Harry Muns, Box 413, Wynona, Okla. *Plants* in Oklahoma, Kansas and Texas. *Capacity*, 243,700.

Sloan & Zook Co., The., 101 Main St., Kane, Pa.

Pres., R. T. Zook. *V. P.*, William J. Sloan. *Sec.*, C. T. Rickerson. *Treas.*, William J. Sloan. *Gen. Supt.*, Paul H. Zook. *Pur. Agt.*, Theodore C. Johnson. *Ch. Engr.*, H. R. Johnson. *Plant Supt.*, Theodore C. Johnson, Box 481, Kane, Pa. *Plant* in Pennsylvania. *Capacity*, 1,500.

Smith Bros. Refining Co., McLean, Tex.

Pres., Vester Smith. *V. P.*, Porter Smith. *Sec.*, and *Treas.*, P. J. Coffey. *Plants* in Texas. *Capacity*, 70,000.

Snowden & McSweeney Co., 598 Madison Ave., New York City.

Pres., Henry McSweeney. *V. P.'s*, J. P. Shannon, George G. Snowden, Jr. *Sec.*, Pearl M. Snowden. *Treas.*, Marie H. Wright. *Gen. Supt.*, A. E. Baldwin. *Plant Supt.*, A. E. Baldwin, Bridgeport, Ill. *Plant* in Illinois. *Capacity*, 800.

South Penn Oil Co., 411 Seventh Ave., Pittsburgh, Pa.

Pres., P. H. Curry. *V. P.'s*, F. J. Hufman, C. B. Turner. *Sec.*, J. L. Hays. *Treas.*, T. B. Judge. *Gen. Supts.*, Charles F. Stevenson, S. R. Williams. *Sales Mgr.*, W. A. Jackley. *Ch. Chem.*, H. J. Little. *Pur. Agt.*, W. P. Wissner. *Ch. Engr.*, O. O. Cole. *Plant Supts.*, J. L. O'Neil, Oil City, Pa.; Andrew Watson, Noblestown, Pa.; O. C. Carlson, Bradford, Pa.; W. P. Dorrion, Tiona, Pa.; J. C. Knight, Fairview, W. Va.; J. P. McJurrer, Pinch, W. Va.; W. K. McCray, Spencer, W. Va.; J. F. Black, Wolf Summit, W. Va.; G. H. Crummett, Yawkey, W. Va.; J. R. Brooks, Parkersburg, W. Va.; A. S. Haught, Smithfield, W. Va. *Plants* in Pennsylvania and West Virginia. *Capacity*, 24,950 (625 shut down).

Standard Oil Co. of California, 225 Bush St., San Francisco, Calif.

Pres., W. H. Berg, *V. P.'s*,, M. E. Lombardi, H. D. Collier, R. W. Hanna, R. K. Davies. *Sec.*, J. H. Tuttle. *Treas.*, V. F. Palmer. *Plants* in California. *Capacity*, 695,755, (34,755 shut down).

Standard Oil Co. of Louisiana, 2134 St. Charles Ave., New Orleans, La.

Pres., M. J. Rathbone. *V. P.'s*, J. A. Bechtold; M. W. Boyer; S. W. Day; J. R. McWilliams; J. E. Skehan. *Sec.*, S. E. Kidd. *Treas.*, J. A. Bechtold. *Gen. Supt.*, R. A. Howe, Shreveport, La. *Plants* in Louisiana and Arkansas. *Capacity*, 20,340 (1,000 shut down).

Standard Oil Co. of Texas, 225 Bush St., San Francisco, Calif.

Pres., W. H. Berg. *V. P.'s*, R. W. Hanna, R. K. Davies, M. E. Lombardi, G. E. Kennedy. *Sec.*, J. H. Tuttle. *Treas.*, V. F. Palmer. *Plant* in Texas. *Capacity*, 35,000.

Stanolind Oil & Gas Co., Philcade Bldg., Tulsa, Okla.

Chm. of Board, A. W. Peake. *Pres.*, F. O. Prior. *V. P.'s*, E. F. Bullard, A. M. McCorkle. *Sec.* and *Treas.*, F. J. Keleher. *Gen. Supt.*, C. S. Sanders. *Pur. Agt.*, W. L. James. *Plant Supts.*, H. U. Jarrett, Tonkawa, Okla.; A. C. Andrews, Gilliam, La.; V. N. Sibley, Midwest, Wyo. *Plants* in Oklahoma, Louisiana and Wyoming. *Capacity*, 93,500.

Sterling Oil & Gas Co., 1109 Thompson Bldg., Tulsa, Okla.

Pres., W. S. Duty, Winchester, Ky. *V. P.*, T. T. Curtis. *Sec.* and *Treas.*, A. E. Schmitz. *Supt.*, Elmer Overmon, Sperry, Okla. *Plant* in Oklahoma. *Capacity* 150 (shut down).

St. Helens Petroleum Co., Ltd., 1031 S. Broadway, Los Angeles, Calif.

Management Committee: R. W. Stephens, chairman; Charles Drader, A. P. McEachern, F. M. Ziegler. *Los Angeles Sec.*, A. P. McEachern. *Gen. Supt.*, C. Z. Webb. *Sales Mgr.*, M. F. Dolan. *Ch. Chem.*, C. W. Spark. *Pur. Agt.*, H. C. Drader. *Ch. Engr.*, C. Z. Webb. *Plants* in California. *Capacity*, 5,000 (2,000 shut down).

Stranahan & Cheuvront, 405 W. Main St., Oblong, Ill.

Sec. and *Treas.*, A. B. Cheuvront. *Plant Supt.*, J. F. Brown, Oblong, Ill. *Plant* in Illinois. *Capacity*, 40.

Southern Minerals Corp., 411 N. Broadway, Corpus Christi, Tex.

Pres., H. A. Galt. *V. P.'s*, C. M. Brown; C. K. Cooper. *Sec.*, J. H. Heroy. *Treas.*, F. W. Currier. *Gen. Supt.*, D. H. Hancock. *Pur. Agt.*, Shelton Lee. *Supt.*, H. H. Hiatt. *Plant* in Texas. *Capacity*, 25,000.

Success Oil Co., 503 W. Elm St., Titusville, Pa.

Pres. and *Mgr.*, George H. Davis. *Plant Supt.*, Aubrey P. Porter, Jr., Titusville, Pa. *Plant* in Pennsylvania. *Capacity*, 1,500.

Superior Oil Co., 930 Edison Bldg., Los Angeles, Calif.

Pres., W. M. Keck. *V. P.'s*, J. P. Chandler, Charles A. Dore, W. A. Pruett. *Sec.* and *Treas.*, J. P. Chandler. *Pur. Agt.*, George H. Barry. *Plant* in California. *Capacity*, 100,000.

T

Texas Co. (California), The, 929 Broadway, Los Angeles, Calif.

Pres. and *Gen. Mgr.*, C. E. Olmsted. *V. P.'s*, H. W. Dodge, New York City; R. T. Herndon, L. R. Holmes. *Sec.*, E. M. Crone, New York City. *Treas.*, C. E. Woodbridge, New York City. *Prod. Mgr.*, F. C. Sealey. *Gen. Supt.*, R. L. Keyes. *Supt. Gaso. Oper.*, N. H. Mull. *Pur. Agt.*, A. F. Colling, New York City. *Plants* in California. *Capacity*, 215,500.

Texas Co. (Delaware), The, 135 E. Forty-second St., New York, N. Y.

Pres., W. S. S. Rodgers. *V. P.'s*, H. W. Dodge; T. J. Donoghue, Houston, Tex.; H. T. Klein; F. T. Manley; G. L. Noble, Houston, Tex.; R. Ogarrio. *Sec.*, E. M. Crone. *Treas.*, C. E. Woodbridge. *Sales Mgrs.*, Northern, W. L. Kallman; Central, S. B. Wright, Chicago, Ill.; Southern, J. S. Leach, Houston, Tex. *Pur. Agt.*, A. F. Colling. *Supts.*, M. J. Adams, Fort Worth, Tex.; C. C. Kelley, Tulsa, Okla. *Plants* in Texas, Louisiana, Oklahoma and Kansas. *Capacity*, 98,720.

Texas Pacific Coal & Oil Co., Fort Worth, Tex.

Pres., J. R. Penn. *V. P.'s*, O. E. Mitchell, John Hancock. *Sec.* and *Treas.*, R. Seibel. *Gen. Supt.*, D. B. Hiatt. *Sales Mgr.*, O. E. Mitchell. *Pur. Agt.*, J. C. Davis. *Engr.*, D. J. Costa. *Supts.*, C. D. Bronstad, Caddo, Tex.; H. D. White, Strawn, Tex. *Plants* in Texas. *Capacity*, 15,000.

Texoma Natural Gas Co., 20 N. Wacker Drive, Chicago, Ill.

Pres., W. A. Jones, New York. *V. P.*, Floyd C. Brown. *Sec.*, S. E. Campbell. *Treas.*, E. H. Johnson, New York. *Gen. Supt.*, G. M. Davidson. *Ch. Chem.*, E. G. Hammerschmidt, Fritch, Tex. *Pur. Agt.*, L. E. Biggs. *Ch. Engr.*, G. M. Davidson. *Plant Supt.*, R. T. Powers, Box 36, Fritch, Tex. *Plant* in Texas. *Capacity*, 90,000.

Thomas, R. L., 290 Main St., Tidioute, Pa.

Owner, R. L. Thomas. *Plant* in Pennsylvania. Capacity, 200.

Tide Water Associated Oil Co., 17 Battery Place, New York, N. Y.

Pres., William F. Humphrey. *Exec. V. P.*, E. L. Shea. *V. P.'s*, L. F. Bayer, C. R. Barton, J. D. Collins, L. C. Decius, B. I. Graves, G. J. Hanks, J. H. Jenkins, L. D. Jurs, R. B. Pringle, Noel Robinson, R. E. Ryerson, E. H. Salrin. *Sec.*, W. J. Burker. *Treas.*, K. R. Hankinson. *Sales. Mgr.*, J. D. Collins. *Pur. Agts.* P. W. Fenton, New York; M. F. Bridges, Tulsa, Okla. *Traf. Mgrs.* C. F. Dowd, New York; J. E. Lewallen, Tulsa, Okla. *Plant* in Louisiana. *Capacity*, 40,000.

Tompsett Bros., 15 Main St., Tidioute, Pa.

Pres., W. C. Tompsett. *Plant* in Pennsylvania. *Capacity*, 200.

Triangle Co., Pine Hollow Road, McKees Rocks, Pa.

Pres., J. B. Montgomery. *Sec.*, John H. Montgomery. *Treas.*, S. H. Morgan. *Gen. Supt.*, A. A. Bock. *Plant* in Pennsylvania. *Capacity*, 300.

Triumph Petroleum Co., Rt. 2, Tidioute, Pa.

Mgr., Ernest R. Johnson. *Plant* in Pennsylvania. *Capacity*, 200.

Tucker Oil Co., 1210 City National Bank Bldg., Wichita Falls, Tex.

Pres., J. J. Perkins. *V. P., Sales Mgr.* and *Gen. Supt.*, Charles J. Tucker. *Sec.* and *Treas.*, Harold Murph. *Pur. Agt.*, L. B. Horr, Box 641, Burkburnett, Tex. *Plant* in Texas. *Capacity*, 4,000.

Tyler Oil Co., Sistersville, W. Va.

Pres., H. J. Crawford, *V. P.*, J. P. Flynn. *Sec.*, Nell B. McCoy. *Gen. Supt.*, J. P. Flynn. *Plants* in West Virginia and Ohio. *Capacity*, 149.

U

Union Gasoline & Oil Corp., Kanawha Valley Bldg., Charleston, W. Va.

Pres., Charles A. Munroe. *V. P.'s*, Don M. Wilson, Charles F. Huff, Ralph N. Parks. *Sec.*, William M. Fallon. *Treas.*, N. E. Shupe. *Sales Mgr.*, Ralph N. Parks. *Ch. Chem.*, J. E. Pew. *Supts.*, W. H. Dardinger, R.F.D. No. 2, Moundsville, W. Va.; Charles Stackpole, Porter Falls, W. Va.; Rex Allman, Jane Lew, W. Va. *Plants* in West Virginia. *Capacity*, 16,000 (6,000 shut down).

Union Oil Co. of California, 617 W. Seventh St., Los Angeles, Calif.

Pres., L. P. St. Clair. *V. P.'s*, R. D. Matthews, Exec. V.P.; W. W. Orcutt, W. L. Steward, Jr.; Paul M. Gregg, A. Campbell Galbraith. *Compt.*, G. H. Forster, *Sec.*, W. R. Edwards. *Treas.*, J. M. Rust. *Gen. Mgr.*, R. E. Haylett. *Gen. Supt.*, R. D. Gibbs. *Sales Mgr.*, V. H. Kelly. *Ch. Chem.*, Dr. D. R. Merrill. *Pur. Agt.*, H. C. Farquhar. *Ch. Engr.*, E. W. Gard. *Plant Supt.*, J. C. Rector, Santa Fe Springs, Calif. *Plants* in California. *Capacity*, 238,750.

United Carbon Co., Inc., Union Bldg., Charleston, W. Va.

Pres., Oscar Nelson. *V. P.'s*, G. A. Williams, T. F. Koblegard. *Sec.*, C. H. McHenry. *Treas.*, T. A. Whelan. *Gen. Supt.*, H. E. Norrick. *Sales Mgr.*, A. G. Treadgold. *Pur. Agt.*, C. A. Urban. *Ch. Engr.*, Hilding Hanson. *Ch. Chem.*, G. L. Roberts. *Plant Supt.*, H. W. Engstrom, Monroe, La. *Plants* in Louisiana. *Capacity*, 18,000 (14,000 shut down).

United Gas Pipe Line Co., P. O. Box 2492, Houston, Tex.

Pres., N. C. McGowen, Shreveport, La. *V. P.'s*, R. H. Hargrove, M. A. Abernathy. *Comptroller*, S. L. Davis. *Sec.*, J. H. Miracle. *Treas.*, A. L. McClellan. *Gen. Supt.*, W. F. Fulton. *Asst. Gen. Supt.*, F. L. Rhoades, Shreveport, La. *Pur. Agt.*, R. A. Reeder. *Ch. Chem.*, W. F. Fulton. *Ch. Engr.*, A. D. Greene. *Supts.*, O. M. Campbell, Banquete, Tex.; H. S. Ridings, Archibald, La.; J. A. Temple, Cotton Valley, La.; L. O. Lawless, Bethany, La.; F. C. Dugan, Refugio, Tex.; J. L. Gilbert, Myrtis, La.; A. Meeks, Athens, La. *Plants* in Louisiana and Texas. *Capacity*, 300,000 (2,500 shut down).

Universal Consolidated Oil Co., 417 South Hill St., Los Angeles, Calif.

Pres., E. G. Starr. *V. P.*, R. E. Stearns. *Sec.*, R. D. Miller. *Treas.*, G. A. Zanzot. *Gen. Supt.*, D. M. Hodges. *Pur. Agt.*, P. J. Hayes. *Plant Supts.*, D. M. Hodges, 417 S. Hill St., Los Angeles, Calif.; L. F. Barrows, Lost Hills, Calif. *Plants* in California. *Capacity*, 10,000 (2,000 shut down).

Utilities Production Corp., Tulsa, Okla.

Pres., B. F. Pickard, St. Louis, Mo. *V. P.*, W. F. Hebeler. *Sec.*, E. C. Brown. *Treas.*, Weldon Smith. *Pur. Agt.*, E. C. Wetter. *Plant* in Oklahoma. *Capacity*, 1,500 (shut down).

V

Vacuum Gasoline Co., Lawrenceville, Ill.

Plant in Illinois. *Capacity*, 2,000.

Victor Gasoline Co., Chestnut & Smith Bldg., Tulsa, Okla.

Pres., M. F. Powers. *V. P.*, C. P. Quinlan. *Sec.*, J. L. Goddard. *Treas.*, Felix Quinlan. *Gen. Supt.*, M. F. Powers. *Sales Mgr.*, E. C. Sager. *Ch. Chem.*, J. W. Edwards. *Pur. Agt.*, F. George Heinze. *Plant Supts.*, L. J. Rush, Box 272, Bristow, Okla.; D. B. Gilmore, Route 3, Box 99, Stroud, Okla. *Plants* in Oklahoma. *Capacity*, 9,000.

Vincennes Oil & Gas Co., Sullivan, Ind.

Pres., E. M. Kerlin. *V. P.*, C. E. Kerlin. *Sec.*, R. D. Green. *Gen. Supt.*, R. C. Kerlin. *Supt.*, Homer Means, Lawrenceville, Ill. *Plant* in Illinois. *Capacity*, 1,000.

Virginian Gasoline & Oil Co., Kanawha Valley Bldg., Charleston, W. Va.

Pres., Charles A. Munroe. *V. P.'s*, Don M. Wilson, Charles F. Huff, Ralph N. Parks. *Sec.*, William M. Fallon. *Treas.*, N. E. Shupe. *Sales Mgr.*, Ralph N. Parks. *Ch. Chem.*, J. E. Pew. *Supts.*, B. R. Samples, Elkview, W. Va.; W. L. Haynes, Clendenin, W. Va.; W. H. Evilsizer, Villa Route, Box 8, Charleston, W. Va.; C. R. Smith, R.F.D. No. 2, Box 240, St. Albans, W. Va.; Geo. Kiser, Hubball, W. Va.; C. H. Copenhaver, Stoffel, W. Va.; Geo. S. Robinson, Box 162, Mammoth, W. Va.; Ray Grabeel, Ona, W. Va.; H. W. Critchfield, Sandyville, W. Va.; W. F. Burdette, Three Mile, W. Va.; Silas Clark, Pad, W. Va.; S. M. Pittman, R.F.D. No. 1, Box 127, Charleston, W. Va.; Ramie J. Grady, Box 388, Spencer, W. Va.; Owen Wheeler, R.F.D. No. 1, Catlettsburg, Ky.; M. H. Griffith, Kermit, W. Va. *Plants* in West Virginia and Kentucky. *Capacity*, 190,100 (5,800 shut down).

W

Waggoner, W. T., Estate (Natural Gasoline Department), Vernon, Tex.

Pres., G. L. Waggoner. *V. P.*, E. P. Waggoner. *Sec.*, R. L. More. *Gen. Mgr.*, C. A. Hodges. *Pur. Agt.*, J. T. McNamara. *Supt.*, A. K. Thorne. *Plant* in Texas. *Capacity*, 12,000.

Wahl, A. R., 249 Main St., Evans City, Pa.

Owner and *Mgr.*, A. R. Wahl. *Plant* in Pennsylvania. *Capacity*, 300.

Warner-Caldwell Oil Co., Second National Bank Bldg., Titusville, Pa.

Pres., Alex N. Warner. *V. P.*, James H. Caldwell. *Sec.* and *Treas.*, Floyd B. August. *Gen. Supt.*, Alex N. Warner. *Plant Supt.*, John T. Dalton, Titusville, Pa. *Plant* in Pennsylvania. *Capacity*, 1,000.

Warren Petroleum Corp., National Bank of Tulsa Bldg., Tulsa, Okla.

Pres., W. K. Warren. *V. P.*, J. A. LaFortune. *Sec.*, H. E. Felt. *Treas.*, A. J. Murphy. *Sales Mgr.*, S. I. Hulse. *Ch. Chem.*, L. M. Mauney. *Pur. Agt.*, P. J. Hoaglund. *Ch. Engr.*, J. T. Oxley. *Plant Supts.*, W. H. Williams, Box 686, Healdton, Okla.; L. D. Parker, Box 37, Harjo, Okla.; Ray Eaton, Rt. 8, Box 243, Oklahoma City, Okla.; J. W. Kearney, Box 67, Monument, N. Mex.; Arnold Evans, Box 157, Galva, Kans.; John Hill, Box 678, Aransas Pass, Tex.; D. B. Young, Box 5, Fittsown, Okla.; E. D. Egleston, Box 312, Holdenville, Okla. *Plants* in Kansas, Oklahoma and New Mexico. *Capacity*, 255,000 (10,000 shut down).

L. H. Wentz (Oil Division), Ponca City, Okla.

Gen. Supt., O. H. Schoenwald. *Pur. Agt.*, S. C. Harkness. *Plant Supt.*, M. F. Johnson, Rt. 3, Newkirk, Okla. *Plants* in Oklahoma. *Capacity*, 8,000 (5,000 shut down).

West Coast Refining Co., 802 Richfield Bldg., Los Angeles, Calif.

Pres., A. H. Bradford. *V. P.'s*, M. D. Schatzman, W. M. Bradford. *Sec.* and *Treas.*, William B. Ogden. *Plant Supt.*, B. M. Hennessey, Placentia, Calif. *Plant* in California. *Capacity*, 25,000.

Western States Gasoline Corp., 609 S. Grand Ave., Los Angeles, Calif.

Pres., C. R. Gallagher. *V. P.*, E. McGowan. *Sec.*, G. C. O'Connell. *Treas.*, C. R. Gallagher. *Gen. Supt.*, W. N. Roper. *Pur. Agt.*, C. E. Spangler. *Ch. Engr.*, W. N. Roper. *Plant Supts.*, W. F. Boice, Kettleman Hills, P. O. Box 7, Avenal, Calif.; K. C. Hamilton, San Miguelito, P. O. Box 624, Ventura, Calif. *Plants* in California. *Capacity*, 170,000.

Westoak Gasoline Co., P. O. Box 507, Sayre, Okla.

Pres., Oscar Nelson. *V. P.*, D. S. Keenan. *Sec.* and Treas., C. K. Springfield. *Gen. Supt.*, W. F. Seeger. *Ch. Engr.*, Carl Williams. *Plant Supt.*, E. Adams. Sayre, Okla. *Plant* in Oklahoma. *Capacity*, 15,000.

West Texas Gas Co., Lubbock, Tex.

Pres., Albert R. Jones, Kansas City, Mo. *V.P.* and *Gen. Mgr.*, R. F. Hinchey. *V.P.'s*, P. C. Spencer, 630 Fifth Ave., New York City; M. D. Snyder, P. O. Box 637, Amarillo, Tex.; E. A. Sickels, P. O. Box 521, Tulsa, Okla. *Sec.* and *Treas.*, George Baird. *Gen. Supt.*, E. C. Wagner, Amarillo, Tex. *Pur. Agt.*, E. D. Parker. *Ch. Engr.*, W. W. Rusk, Amarillo, Tex. *Supt.*, J. S. LeGate, Box 445, Rt. 3, Amarillo, Tex. *Plant* in Texas. *Capacity*, 30,000.

H. F. Wilcox Oil & Gas Co., 310 W. Sixth St., Tulsa, Okla.

Pres., H. F. Wilcox. *V. P.'s*, F. H. Dunn, M. P. Appleby. *Sec.*, C. L. Miller. *Treas.*, M. P. Appleby. *Sales Mgr.*, T. H. Riggin. *Ch. Chem.*, Lester Borthick. *Ch. Engr.*, H. W. McCullah. *Plant Supt.*, D. C. Gantt, Box 422, Pampa, Tex. *Plant* in Texas. *Capacity*, 10,000.

Wilshire Oil Co., Inc., 2455 E. Twenty-seventh St., Vernon, Calif.

Pres., George L. Machris. *V. P.*, Maurice A. Machris. *Sec.* and *Treas.*, Alfred P. Machris. *Gen. Supt.*, L. A. Seppi. *Sales Mgr.*, M. M. Fletcher. *Ch. Chem.*, Fred Behrens. *Pur. Agt.*, A. Pateracki. *Ch. Engr.*, William F. Neeley. *Plant* in California. *Capacity*, 60,000.

Wright, Rosa B., 1700 S. Main St., Sapulpa, Okla.

Owner, Rosa B. Wright. *Gen. Mgr.*, and *Pur. Agt.*, J. A. Rettenmeyer. *Gen. Supt.*, A. B. Nigh. *Sales Mgr.*, M. L. Murphy. *Plant* in Oklahoma. *Capacity*, 5,000.

Wolverine Petroleum Corp., Shell Bldg., St. Louis, Mo.

Pres., Alexander Fraser. *V. P.*, J. W. Watson. *Gen. Supt.*, T. R. Goebel. *Sales Mgr.*, P. E. Lakin. *Pur. Agt.*, C. B. Singleton. *Plant Supervisor*, R. E. Baker. *Supts.*, L. Lamar, Drawer B, Wolco, Okla.; S. U. Young, P. O. Box 548, Wilson Okla. *Plants* in Oklahome. *Capacity*, 20,000.

1938 Survey of Natural Gasoline Plants in U. S.

ARKANSAS

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Arkansas Fuel Oil Co., Shreveport, La.	Sec. 31-17s-15w, Union Co.	C-A	5,000
East Texas Ref. Co., Dallas, Tex.	Sec. 11-20-28, A. A. Capps lease, Miller County	Absp.	50,000
Gulf Refining Co., El Dorado	Sec. 8-18-15, Union County	Absp.	5,000
Henderson Co., El Dorado	Sec. 10-17s-14w	C-A	10,000
Louisiana Iron & Supply Co., Shreveport, La.	El Dorado	Comp.	3,000
Louisiana Iron & Supply Co., Shreveport, La.	Louann	Comp.	3,000
Magnolia Petroleum Co., Dallas, Tex.	Sec. 8-15s-16w, Union Co.	Absp.	5,000
Standard Oil Co. of La., El Dorado	El Dorado	C-A	10,660
Standard Oil Co. of La., Smackover	Smackover	C-A	*1,000

*Shut down.

CALIFORNIA

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Bankline Oil Co., Los Angeles	Jasper lease, Long Beach	Absp.	20,000
Barnsdall Oil Co., Goleta	Sec. 15-4n-29w, Santa Barbara County	Absp.	60,000
Belridge Oil Co., Los Angeles	Sec. 26-27s-20e	Absp.	40,000
Belridge Oil Co., Los Angeles	Sec. 26-27s-20e	Absp.	40,000
Belridge Oil Co., Los Angeles	Sec. 34-30s-24e	Absp.	7,000
Brea Canyon Oil Co., Los Angeles	Brea-Olinda	Absp.	14,000
Calumet Oil Co., Los Angeles	Sec. 3-3n-19w, Ventura Co.	Comp.	1,000
Coline Gasoline Corp., Torrance	Sec. 16-4s-14w, Los Angeles County	Absp.	10,000
Coline Gasoline Corp., Ventura	Sec. 16-3n-24w, Ventura Co.	Absp.	20,000
Cowan Oil & Ref. Co., Los Angeles	Belridge-Lost Hills field	Absp.	60,000
Del Rey Oil & Gas Co., Venice	Playa del Rey	Absp.	60,000
Field, O. C., Gasoline Corp., Huntington Beach	Garfield and Smeltzer	Absp.	40,000
Field, O. C., Gasoline Corp., Huntington Beach	17th and Acacia	Absp.	50,000
General Pet. Corp. of Calif., Los Angeles	Brea-Olinda	Absp.	*20,000
General Pet. Corp. of Calif., Los Angeles	Rosecrans	C-A	40.000
General Pet. Corp. of Calif., Los Angeles	C.C.M.O. lease, Santa Fe Springs	Absp.	55,000
General Pet. Corp. of Calif., Los Angeles	Barnard lease, Ventura	Absp.	25,000
General Pet. Corp. of Calif., Los Angeles	Wilmington	Absp.	85,000
Gilmore-Dabney, Inc., Long Beach	Signal Hill	Absp.	30,000
Hokom, John, Oil & Gasoline Co., Ltd., Los Angeles	Lawndale	Absp.	2,500
Honolulu Oil Corp., Taft	Sec. 8-32-24	C-A	25,000
Honolulu Oil Corp., Taft	Sec. 8-32-24	C-A	25,000
Inglewood Gasoline Corp., Long Beach	Inglewood	Absp.	7,500
Italo Pet. Corp. of America, P. O. Box 57, Coalinga	Sec. 6-21s-15e M.D.M., Fresno County	Absp.	300
Lomita Gasoline Co., Long Beach	Jergins lease	Absp.	60,000
Lomita Gasoline Co., Long Beach	Mountain View	Absp.	30,000
Los Nietos Producing & Refining Co., Ltd., Avenal	Kettleman Hills	Absp.	100,000
Norwalk Co., The, Los Angeles	Midway-Sunset	Absp.	10,000
Norwalk Co., The, Los Angeles	Midway-Sunset	Absp.	10,000
Norwalk Co., The, Los Angeles	Santa Fe Springs	Absp.	50,000
Ohio Oil Co., Los Angeles	El Segundo, Los Angeles County	C-A	20,000
Pacific Western Oil Corp., Los Angeles	Elwood	Absp.	15,000
Pacific Western Oil Corp., Los Angeles	Ventura	Absp.	15,000
Rancho Gasoline Corp., Los Angeles	Kern County	Char.	15,000
Rice Ranch Oil Co., Santa Maria	Lot 6, Sec. 19-9n-33w, S.B.M.	Absp.	5,000
Richfield Oil Corp., Los Angeles	Crampton lease, Elk Hills	Absp.	5,000
Richfield Oil Corp., Los Angeles	El Segundo	Absp.	50,000
Richfield Oil Corp., Los Angeles	Huntington Beach	Absp.	*15,000
Richfield Oil Corp., Los Angeles	Long Beach	Absp.	25,000
Richfield Oil Corp., Los Angeles	Hobson fee lease, Rincon	Absp.	15,000
Richfield Oil Corp., Los Angeles	Baker lease, Santa Fe Springs	Absp.	*15,000
Shell Oil Co., San Francisco	Grazide lease, Brea-Olinda	Absp.	20,000
Shell Oil Co., San Francisco	Capitan	Absp.	5,000
Shell Oil Co., San Francisco	Dominguez	Absp.	25,000
Shell Oil Co., San Francisco	Long Beach	Absp.	120,000
Shell Oil Co., San Francisco	Santa Maria	Absp.	2,500
Shell Oil Co., San Francisco	Ten Section	Absp.	12,000
Shell Oil Co., San Francisco	Ventura	Absp.	90,000
Signal Oil & Gas Co., Los Angeles	Long Beach	Absp.	10,000
Signal Oil & Gas Co., Los Angeles	Long Beach	Absp.	20,000
Signal Oil & Gas Co., Los Angeles	Long Beach	Absp.	30,000
Signal Oil & Gas Co., Los Angeles	Long Beach	Absp.	*15,000
Signal Oil & Gas Co., Los Angeles	Long Beach	Absp.	15,000
Signal Oil & Gas Co., Los Angeles	Long Beach	Absp.	30,000
Standard Oil Co. of Calif., San Francisco	Cahn lease, Belridge-Lost Hills	Absp.	4,000
Standard Oil Co. of Calif., San Francisco	Brea-Olinda	Absp.	6,500
Standard Oil Co. of Calif., San Francisco	Coyote Hills	Absp.	15,000
Standard Oil Co. of Calif., San Francisco	Dominguez	Absp.	*6,755
Standard Oil Co. of Calif., San Francisco	Greeley	Absp.	10,000
Standard Oil Co. of Calif., San Francisco	Hunt. "E" lease, Huntington Beach	Absp.	30,000
Standard Oil Co. of Calif., San Francisco	Hunt. "D" lease, Huntington Beach	Absp.	20,000
Standard Oil Co. of Calif., San Francisco	Hunt. "A" lease, Huntington Beach	Absp.	*12,000
Standard Oil Co. of Calif., San Francisco	Inglewood	Absp.	15,000
Standard Oil Co. of Calif., San Francisco	Sec. 29-V lease, Kettleman Hills	Absp.	35,000
Standard Oil Co. of Calif., San Francisco	Sec. 11-P lease, Kettleman Hills	Absp.	80,000
Standard Oil Co. of Calif., San Francisco	Sec. 3-P lease, Kettleman Hills	Absp.	135,000
Standard Oil Co. of Calif., San Francisco	Sec. 33-J lease, Kettleman Hills	Absp.	85,000
Standard Oil Co. of Calif., San Francisco	Long Beach	Absp.	20,000
Standard Oil Co. of Calif., San Francisco	Sec. 1-C lease, Midway-Sunset	Absp.	16,000
Standard Oil Co. of Calif., San Francisco	Sec. 7-D lease, Midway-Sunset	Absp.	16,000
Standard Oil Co. of Calif., San Francisco	Sec. 31-B lease, Midway-Sunset	Absp.	8,000
Standard Oil Co. of Calif., San Francisco	Sec. 35-S lease, Midway-Sunset	Absp.	*6,000
Standard Oil Co. of Calif., San Francisco	Sec. 36-R lease, Midway-Sunset	Absp.	*10,000
Standard Oil Co. of Calif., San Francisco	Sec. 31-E lease, Midway-Sunset	Absp.	7,500
Standard Oil Co. of Calif., San Francisco	Sec. 29-G lease, Midway-Sunset	Absp.	10,000
Standard Oil Co. of Calif., San Francisco	Sec. 32-Z lease, Mountain View	Absp.	12,000
Standard Oil Co. of Calif., San Francisco	Sec. 24-X lease, Mountain View	Absp.	8,000
Standard Oil Co. of Calif., San Francisco	Santa Gertrudes, Santa Fe Springs	Absp.	30,000
Standard Oil Co. of Calif., San Francisco	San Gabriel lease, Seal Beach	Absp.	30,000
Standard Oil Co. of Calif., San Francisco	Joughin lease, Torrance	Absp.	6,000
Standard Oil Co. of Calif., San Francisco	Assoc.-Lloyd No. 1, Ventura	Absp.	33,000
Standard Oil Co. of Calif., San Francisco	McGonigle Lloyd, Ventura	Absp.	29,000
St. Helens Petroleum Co., Ltd., Taft	Midway, Kern County	Absp.	*2,000
St. Helens Petroleum Co., Ltd., Montebello	Montebello	Absp.	3,000
Superior Oil Co., Los Angeles	Kettleman Hills	Absp.	100,000
Texas Co., The, Los Angeles	Huntington Beach	Absp.	20,000
Texas Co., The, Los Angeles	Signal Hill	Absp.	75,000
Texas Co., The, Los Angeles	Montebello	Absp.	25,000
Texas Co., The, Los Angeles	Santa Fe Springs	Absp.	50,000
Texas Co., The, Los Angeles	South Mountain, Ventura Co.	Absp.	10,500
Texas Co., The, Los Angeles	Shiells Canyon, Ventura Co.	Absp.	35,000
Union Oil Co. of California, Los Angeles	Stearns lease, Brea-Olinda	Absp.	22,500
Union Oil Co. of California, Los Angeles	Hellman lease, Dominguez	Absp.	69,000
Union Oil Co. of California, Los Angeles	King lease, Kettleman Hills	Comp.	30,000
Union Oil Co. of California, Los Angeles	Morse lease, Richfield	Absp.	10,000
Union Oil Co. of California, Los Angeles	Rosecrans lease, Rosecrans	Absp.	27,000
Union Oil Co. of California, Los Angeles	Bell lease, Santa Fe Springs	Absp.	70,000
Union Oil Co. of California, Los Angeles	Newlove lease, Santa Maria	Absp.	10,000
Union Oil Co. of California, Los Angeles	Santa Paula refinery, Ventura-Newhall	Absp.	250
Universal Consolidated Oil Co., Los Angeles	Montebello, Sec. 2-2-11, Los Angeles County	Absp.	8,000
Universal Consolidated Oil Co., Los Angeles	Lost Hills, Sec. 32-26-21, Kern County	Absp.	*2,000
West Coast Ref. Co., Los Angeles	Richfield, Orange County	Absp.	25,000
Western States Gasoline Corp., Avenal	Kettleman Hills, Kings County	Absp.	160,000
Western States Gasoline Corp., Ventura	San Miguelito, Ventura County	Absp.	10,000
Wilshire Oil Co., 2455 E. 27th St., Vernon	Santa Fe Springs	Absp.	60,000

*Shut down.

COLORADO

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Mountain States Oil Corp., Trinidad	SW¼ Sec. 3-33s-62w	Absp.	6,000

ILLINOIS

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
American Oil Development Co., Oblong	Crawford County	Comp.	200
American Oil Development Co., Eaton	Crawford County	Comp.	200
American Oil Development Co., Hardinville	Crawford County	Comp.	100
Arkansas Fuel Oil Co., Shreveport, La.	Sec. 3, Prairie Twp., Crawford County	Comp.	500
Brenneman & MacDonell, Lima, Ohio	Sec. 6-6-13	Comp.	1,200
Brenneman & MacDonell, Lima, Ohio	Sec. 5-6-13	Comp.	150
Kewanee Oil Co., Robinson	Crawford County (5 plants, total)	Comp.	150
Kewanee Oil Co., Robinson	Lawrence County (2 plants, total)	Comp.	150
Mahutska Oil Co., Robinson	Near Stoy	Comp.	500
Mahutska Oil Co., Oblong	North of Oblong	Comp.	500
Nolan & Lamberton, Tulsa, Okla.	Sec. 12-7-14, Crawford County	Comp.	50
Ohio Oil Co., Oblong	Crawford County	Comp.	405
Ohio Oil Co., Oblong	Crawford County	Comp.	240
Ohio Oil Co., Oblong	Crawford County	Comp.	310
Ohio Oil Co., Robinson	Crawford County	Comp.	245
Ohio Oil Co., Hardinville	Crawford County	Comp.	755
Ohio Oil Co., Hardinville	Crawford County	Comp.	100
Ohio Oil Co., Stoy	Crawford County	Comp.	835
Ohio Oil Co., Oblong	Crawford County	Comp.	340
Ohio Oil Co., Oblong	Crawford County	Comp.	1,130
Ohio Oil Co., Oblong	Crawford County	Comp.	200
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,050
Ohio Oil Co., Casey	Clark County	Comp.	1,150
Snowden & McSweeney Co., 598 Madison Ave., New York, N. Y.	Bridgeport	Comp.	800
Stranahan & Cheuvront, Oblong	NE NE NW Sec. 11-7-14, Crawford County	Comp.	20
Stranahan & Cheuvront, Oblong	NW NE Sec. 25-7-13, Crawford County	Comp.	20
Vacuum Gasoline Co., Lawrenceville	Lawrence Co.	Comp.	5,000
Vincennes Oil & Gas Co., Sullivan	Lawrence Co., Petty Twp.	Comp.	1,000

KANSAS

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Aldon Gasoline Co., P. O. Box F, Haven	Sec. 5-25-4, Reno County	Absp.	10,000
Barnsdall Oil Co., Oxford	W½ NW Sec. 20-33-3, Cowley County	Absp.	10,000
Cities Service Oil Co., Arkansas City	SE¼ Sec. 13-34-3, Cowley County	Absp.	15,000
Cities Service Oil Co., Burrton	W½ Sec. 25-23-4, Reno County	Absp.	35,000
Cities Service Oil Co., Madison	NW¼ Sec. 8-23-11, Greenwood County	Absp.	9,000
Cities Service Oil Co., Haven	N½ SE¼ Sec. 17-24-4, Reno County	Absp.	25,000
Cities Service Oil Co., Hamilton	SW¼ Sec. 16-23-9, Greenwood County	Absp.	10,000
Cities Service Oil Co., Wichita	NW¼ Sec. 17-28-1, Sedgwick County	Absp.	50,000
Consolidated Gas Utilities Corp., Oklahoma City	Sec. 24-32s-1w	Absp.	*12,000

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Kansas Power & Light Co., Salina	SW Sec. 29-19n-2w	Absp.	20,000
Kansas Power & Light Co., Salina	NE Sec. 13-32n-12w	Absp.	5,000
Northern Natural Gas Co., Hugoton	NW¼ Sec. 19-33s-36w, Stevens County	Absp.	12,000
Panhandle Eastern Pipe Line Co., Kansas City, Mo.	Secs. 23 and 25-33s-32w, Seward County	Absp.	75,000
Shell Petroleum Corp., Oxford	SE¼ Sec. 25-31s-2e	Comp.	2,500
Sinclair Prairie Oil Co., Box E, Kenbro	SW¼ Sec. 20-22-10e	Comp.	7,000
Skelly Oil Co., Box 236, Cunningham	NE¼ Sec. 30-27s-10w, Kingman County	Absp.	8,000
Texas Co. (Dela.), Houston, Tex.	SW¼ SE¼ Sec. 31-30s-6e, Cowley County	Absp.	7,770
Warren Petroleum Corp., Box 157, Galva	Sec. 14-19s-2w	C-A	25,000
KENTUCKY			
Louisville Gas & Electric Co. Louisville	Winchester	Char.	1,500
Virginian Gasoline & Oil Co., Catlettsburg	Boyd County	Absp.	24,000
Virginian Gasoline & Oil Co., Kermit, W. Va.	Martin County	Absp.	10,000
LOUISIANA			
Arkansas Fuel Oil Co., Shreveport	Sec. 7-17n-11w, Bossier Parish	Absp.	12,000
Arkansas Fuel Oil Co., Shreveport	Sec. 26-23n-16w, Caddo Parish	Absp.	60,000
Arkansas Fuel Oil Co., Shreveport	Sec. 24-21n-8w, Claiborne Parish	Comp.	5,000
Arkansas Fuel Oil Co., Shreveport	Sec. 3-18n-4w, Lincoln Parish	Absp.	10,000
Coltexo Corp., Monroe	Rodessa	Absp.	30,000
Continental Oil Co., Basile	NW¼ Sec. 28-7s-2w, Acadia Parish	Absp.	20,000
Continental Oil Co., Lake Charles	SW¼ Sec. 14-9s-8w, Calcasieu Parish	Absp.	5,000
East Texas Ref. Co., Rodessa	Rodessa Townsite	Absp.	12,000
Glen Rose Gasoline Co., P. O. Box 2, Rodessa	Sec. B-23n-16w, Caddo Parish	Absp.	30,000
Great National Oil Corp., Shreveport	Sec. 8-23-16, Rodessa field	Absp.	15,000
Gulf Refining Co., Mooringsport	Sec. 19-21-7 Claiborne Parish	Absp.	12,000
Gulf Refining Co., Mooringsport	Sec. 19-20-5 Caddo Parish	Absp.	5,000
Ohio Oil Co., Treat	Webster Parish	Absp.	2,000
Ohio Oil Co., Haynesville	Claiborne Parish	Absp.	2,000
Ohio Oil Co., Haynesville	Claiborne Parish	Absp.	2,000
Pala Oil Co., Inc., Mooringsport	Sec. 20-20-15	Comp.	300
Shell Petroleum Corp., Iowa	NW¼ Sec. 18-9s-6w, Jefferson Davis Parish	Absp.	15,000
Stanolind Oil & Gas Co., Gilliam	1 mi. N. of Gilliam	Absp.	2,500
Standard Oil Co. of La., Trees	Caddo field, near Trees	C-A	4,000
Standard Oil Co. of La., Homer	Claiborne field, near Homer	Comp.	4,680
Texas Co. (Dela.), Houston, Tex.	Secs. 29 and 30-17s-24e, Jefferson Parish	Absp.	3,740
Tide Water Asso. Oil Co., Tulsa, Okla.	Rodessa field	Absp.	40,000
United Carbon Co., Inc., Monroe, La.	Sec. 32-19-5, Ouachita Par.	Absp.	*4,000
United Carbon Co., Inc., Monroe, La.	Sec. 32-19-5, Ouachita Par.	Absp.	4,000
United Carbon Co., Inc., Monroe, La.	Sec. 29-16-7, Richland Par.	Absp.	*10,000
United Gas Pipe Line Co., Alto	Sec. 16-16n-6e, Richland Parish	Absp.	30,000
United Gas Pipe Line Co., Cotton Valley	Sec. 18-21n-10w, Webster Parish	Absp.	20,000
United Gas Pipe Line Co., Rodessa	Sec. 14-21n-15w, Caddo Parish	Absp.	140,000
United Gas Pipe Line Co., Swartz	Sec. 32-19n-5e, Ouachita Parish	Absp.	*2,500
United Gas Pipe Line Co., Sugar Creek†	Sec. 6-19n-5w, Claiborne Parish	Absp.	30,000

*Shut down.
†Owned jointly with Sugar Creek Syndicate, Inc., and Standard Oil Co. of Louisiana.

MICHIGAN			
Grimes, Otha H., Box 231, Mt. Pleasant	Greendale field	C-A	6,000
Grimes, Otha H., Box 231, Mt. Pleasant	Yost field	C-A	6,000
Grimes, Otha H., Box 231, Mt. Pleasant	Sherman field	C-A	7,500
MONTANA			
Glacier Production Co., Butte	Sec. 22-33n-5w, Glacier County	Absp.	16,000
NEW MEXICO			
Continental Oil Co., Hobbs	SE¼ Sec. 19-18s-38e, Lea County	Absp.	25,000
El Paso Natural Gas Co., El Paso, Tex.	Sec. 7-26w-27e, Lea County	Absp.	60,000
Phillips Petroleum Co., Eunice	NE¼ Sec. 5-21-36, Lea County	Absp.	25,000
Phillips Petroleum Co., Hobbs	N½ NW¼ Sec. 4-19-38, Lea County	Absp.	40,000
Skelly Oil Co., Box 288, Eunice	N½ SW¼ Sec. 27-22s-37e, Lea County	Absp.	18,000
Warren Petroleum Corp., Box 67, Monument	Sec. 36-19s-36e	Comp.	40,000
OHIO			
Ohio Producing & Refining Co., Cleveland	Sec. 22, Chippewa Twp., Wayne County	Char.	6,000
Hope Construction & Refining Co., Pittsburgh, Pa.	New Matamoras	Absp.	1,200
Pittsburg Oil & Gas Co., Schley	Archers Fork	Comp.	150
Pittsburg Oil & Gas Co., Sycamore Valley	Sycamore Valley	Comp.	150
Preston Oil Co., Summerfield	Stock Twp., Noble County	Absp.	2,000
Preston Oil Co., Medina	York Twp., Medina County	Absp.	5,000
Preston Oil Co., Pavonia	Weller Twp., Richland County	Absp.	10,000
Preston Oil Co., Sugar Grove	Berne Twp., Fairfield County	Absp.	9,000
Preston Oil Co., Homer	Burlington Twp., Licking County	Absp.	15,000
Reno Oil Co., Sistersville, W. Va.	Monroe Co.	Comp.	60
Tyler Oil Co., Sistersville, W. Va.	Monroe Co.	Comp.	40
OKLAHOMA			
Akin Gasoline Co., Tulsa	Bixby	Comp.	300
Akin Gasoline Co., Tulsa	Dewey	Comp.	300
Bartlett Gasoline Co., Butler	3 mi. So. Butler	Absp.	18,000
Barnsdall Oil Co., Avant	SW NW SE Sec. 18-23-12, Osage County	Absp.	2,500
Barnsdall Oil Co., Turley	SE Sec. 5-20-13, Osage County	Absp.	1,000
Barnsdall Oil Co., Osage	SW SE Sec. 20-21-9, Osage County	Absp.	1,200
Barnsdall Oil Co., Osage	NW NW Sec. 29-25-11, Osage County	Absp.	†2,000
Barnsdall Oil Co., Beggs	N½ of NE Sec. 6-14-12, Okmulgee County	Absp.	2,800
Barnsdall Oil Co., Earlsboro	NE NE Sec. 15-9-5, Seminole County	Absp.	25,000
Carter Oil Co., Wilson	SW¼ NW¼ Sec. 23-4s-2w	Absp.	5,000
Carter Oil Co., Seminole	SE¼ SE¼ Sec. 15-9n-6e	Absp.	32,000
Carter Oil Co., Cromwell	NW¼ NW¼ Sec. 3-10n-8e	Absp.	16,000
Carter Oil Co., Fittstown	SW¼ SE¼ Sec. 30-2n-7e	Absp.	39,000
Chase Gasoline Co., Sistersville, W. Va.	Muskogee County	Comp.	1,000
Chase Gasoline Co., Sistersville, W. Va.	Muskogee County	Comp.	1,000
Cimarron Gasoline Corp., Coyle	Langston field	Absp.	4,500
Cities Service Oil Co., Wanette	NE¼ Sec. 22-6-3, Pottawatomie County	Absp.	7,000
Cities Service Oil Co., Wewoka	NW¼ Sec. 19-7-8, Seminole County	Comp.	6,000
Cities Service Oil Co., Seminole	SE¼ Sec. 24-9-6, Seminole County	Absp.	25,000
Cities Service Oil Co., Konawa	NW¼ Sec. 9-6-6, Seminole County	Absp.	12,000
Cities Service Oil Co., Seminole	SW¼ Sec. 14-8-6, Seminole County	Absp.	25,000
Cities Service Oil Co., Seminole	NE¼ Sec. 11-8-5, Seminole County	Comp.	9,000
Cities Service Oil Co., Sasakwa	SE¼ Sec. 7-6-8, Seminole County	Absp.	25,000
Cities Service Oil Co., Tallant	SE¼ Sec. 35-25-10, Osage County	Absp.	20,000
Continental Oil Co., Britton	SW¼ SW¼ Sec. 20-13n-3w, Oklahoma County	Absp.	10,000
Continental Oil Co., Billings	SW¼ NW¼ 21-23n-2w, Noble County	Absp.	20,000
Central States Production Corp., Wetumka	Sec. 21-9-10, Hughes County	Absp.	1,500
Crosbie, J. E., Inc., St. Louis	Sec. 15-7n-4e	Absp.	25,000
Crosbie, J. E., Inc., Holdenville	Sec. 15-7n-8e	Absp.	15,000
Crosbie, J. E., Inc., Fittstown	Sec. 30-2n-7e	Absp.	50,000
Deep Rock Oil Corp., Cushing	Sec. 9-18-10	Absp.	2,200
Deep Rock Oil Corp., Mehan	Sec. 23-18-3	Absp.	500
Deep Rock Oil Corp., Shamrock	Sec. 4-16-7	Absp.	2,000
Deep Rock Oil Corp., Shamrock	Shamrock	Comp.	4,000
Devonian Oil Co., Kellyville	Sec. 22-17-10, Creek County	Absp.	20,000
Eagle Gasoline Co., Tulsa	Creek County	Comp.	1,000
Eason Oil Co., Enid	NE¼ Sec. 12-24n-4w, Garber field	Comp.	3,000
Eason Oil Co., Enid	SW¼ Sec. 24-17n-4w, Crescent field	C-A	15,000
Enfisco Oil Corp., Tulsa	Sec. 17-17-13, Bixby	Comp.	1,500
Grimes, Otha H. and Charles W., Tulsa	Weleetka	Absp.	5,000
Grimes, Otha H. and Charles W., Tulsa	Okemah	Absp.	2,500
Grimes, Otha H., and Roy O. Neal, Box 21, Drumright	Sec. 17-17n-7e	Absp.	6,400
Gulf Oil Corp., Tulsa	Sec. 16-17-12, Creek County	Comp.	17,000
Gulf Oil Corp., Tulsa	Sec. 1-21-7, Osage County	Comp.	1,800
Gulf Oil Corp., Tulsa	Sec. 24-27-5, Osage County	Absp.	9,500
Gulf Oil Corp., Tulsa	Sec. 3-14-8, Creek County	Absp.	2,000
Gulf Oil Corp., Tulsa	Sec. 14-7-6, Seminole County	Absp.	12,000
Gulf Oil Corp., Tulsa	Sec. 7-8-6, Seminole County	Absp.	25,000
Indian Territory Ill. Oil Co., Bartlesville	Button, Sec. 19-11-2, Oklahoma County	Absp.	25,000
Indian Territory Ill. Oil Co., Bartlesville	Bodine, Sec. 24-11-3, Oklahoma County	Absp.	25,000
Indian Territory Ill. Oil Co., Bartlesville	Verne, Sec. 13-11-3, Oklahoma County	Absp.	25,000
Indian Territory Ill. Oil Co., Bartlesville	Jones, Sec. 31-11-2, Oklahoma County	Absp.	25,000
Indian Territory Ill. Oil Co., Bartlesville	Lemmon, Sec. 11-11-3, Oklahoma County	Absp.	25,000
Indian Territory Ill. Oil Co., Bartlesville	Trosper Park, Sec. 12-11-3, Oklahoma County	Absp.	25,000
Lesseig, L., Tulsa	Creek County	Comp.	300
Lone Star Gas Co., Hollis	Hollis	Absp.	15,000
Magnolia Petroleum Co., Dallas, Tex.	Sec. 6-19n-6e, Payne County	Absp.	2,500
Magnolia Petroleum Co., Dallas, Tex.	Sec. 34-15n-5e, Lincoln County	Absp.	3,600
Magnolia Petroleum Co., Dallas, Tex.	Sec. 7-18n-7e, Creek County	Absp.	18,000
Magnolia Petroleum Co., Dallas, Tex.	Sec. 3-16n-7e, Creek County	Absp.	*6,500
Magnolia Petroleum Co., Dallas, Tex.	Sec. 23-2s-3w, Carter County	Absp.	4,600
Magnolia Petroleum Co., Dallas, Tex.	Sec. 32-8n-8e, Seminole County	Absp.	4,000
Magnolia Petroleum Co., Dallas, Tex.	Sec. 15-7n-4e, Pottawatomie County	Absp.	10,000
Magnolia Petroleum Co., Dallas, Tex.	Sec. 21-2n-9e, Pontotoc County	Absp.	30,000
McBride, W. C., Inc., Avant	Sec. 18-23-12, Osage County	Comp.	1,500
Mid-Continent Petroleum Corp., Tulsa	SE¼ SE¼ Sec. 22-17-7	Absp.	20,000
Mid-Continent Petroleum Corp., Tulsa	E½ NW¼ Sec. 5-16-15	Comp.	5,000
Mid-Continent Petroleum Corp., Tulsa	SW¼ Sec. 12-13-13	Absp.	3,000
Mid-Continent Petroleum Corp., Tulsa	NE¼ SW¼ Sec. 15-10-8	Absp.	50,000
Mid-Continent Petroleum Corp., Tulsa	S½ SE¼ Sec. 28-17-14	Comp.	1,000
Mid-Continent Petroleum Corp., Tulsa	NW¼ Sec. 8-15-6	Absp.	3,000
Neal Gasoline Co., Box 186, Osage	Sec. 13-21-8	Absp.	4,200
Neal Gasoline Co., Copan	Near Copan	Absp.	*1,200
Oil State Gasoline Co., Jenks	Sec. 18-18n-13e	Comp.	700
Oil State Gasoline Co., Yale	Sec. 13-19n-5e	Comp.	2,000
Oklahoma Gasoline Plants, Inc., Sapulpa	Sec. 18-18-7e	Absp.	10,000
Oklahoma Utilities Co., Bristow	Sec. 20-16n-9e	Absp.	5,000
Peppers Gasoline Co., Oklahoma City	Lucien field, Noble County	Absp.	15,000
Peppers Gasoline Co., Oklahoma City	Oklahoma City field	Absp.	35,000
Peppers Gasoline Co., Oklahoma City	Enid	Absp.	5,000
Peppers Gasoline Co., Oklahoma City	Oklahoma City field	Absp.	10,000
Phillips Petroleum Co., Oklahoma City	NW¼ SW¼ Sec. 32-11-2w	Absp.	100,000
Phillips Petroleum Co., Bartlesville	NE NE Sec. 26-27-5, Osage County	Absp.	45,000
Phillips Petroleum Co., Bartlesville	W½ SE¼ Sec. 31-14-3w, Oklahoma County	Absp.	40,000
Phillips Petroleum Co., Bartlesville	SE NW Sec. 24-11-11, Okfuskee County	Absp.	17,000

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Phillips Petroleum Co., Bartlesville	NW¼ NW¼ Sec. 23-7-6, Seminole County	Absp.	20,000
Phillips Petroleum Co., Bartlesville	S½ Sec. 1-11-3, Oklahoma County	Absp.	200,000
Phillips Petroleum Co., Bartlesville	SE¼ Sec. 16-24-7, Osage County	C-A	35,000
Phillips Petroleum Co., Bartlesville	SW NW Sec. 38-8-8, Seminole County	Absp.	30,000
Phillips Petroleum Co., Bartlesville	N½ NW¼ Sec. 3-9-9, Hughes County	Absp.	20,000
Powers & Quinlan, Box 696, Beggs	Sec. 2-14-12, Okmulgee County	Comp.	*500
Powers & Quinlan, Box 696, Beggs	Sec. 5-14-12, Okmulgee County	Comp.	*500
Powers, M. F., Box 136, Depew	Depew	Absp.	4,000
Pure Oil Co., Drumright	Sec. 32-18n-7e	Comp.	2,500
Pure Oil Co., Oilton	Sec. 32-19n-7e	Comp.	2,500
Pure Oil Co., Seminole	Sec. 26-9n-6e	Comp.	5,200
Shell Petroleum Corp., Drumright	NE¼ Sec. 8-17n-7e	Absp.	6,000
Shell Petroleum Corp., Orlando	SW¼ Sec. 17-20n-2w	Absp.	20,000
Shell Petroleum Corp., Wilson	NE¼ Sec. 8-4s-3w	Comp.	4,000
Shell Petroleum Corp., Tonkawa	SW¼ Sec. 21-29n-1w	Absp.	6,000
Shell Petroleum Corp., Tonkawa	NE¼ Sec. 2-23n-1w	Absp.	10,000
Shell Petroleum Corp, Marshall	SE¼ Sec. 19-19n-4w	Absp.	*7,500
Shell Petroleum Corp., Maud	SE¼ Sec. 7-8n-5e	Absp.	15,000
Sinclair Prairie Oil Co., Drumright	SW SW Sec. 28-18-7	Absp.	25,000
Sinclair Prairie Oil Co., Shamrock	SW SE Sec. 28-17-7	Comp.	15,000
Sinclair Prairie Oil Co., Covington	W½ SW sec. 19-22-3	Absp.	20,000
Sinclair Prairie Oil Co., Shidler	SW SE Sec. 29-27-6	Absp.	30,000
Sinclair Prairie Oil Co., Seminole	NW NW Sec. 35-9-6	Absp.	70,000
Sinclair Prairie Oil Co., Seminole	SW NE Sec. 10-8-6	Absp.	50,000
Sinclair Prairie Oil Co., St. Louis	SW Sec. 24-7-4	C-A	30,000
Sinclair Prairie Oil Co., Oklahoma City	SE NW Sec. 30-11-2	Absp.	50,000
Skelly Oil Co., Rt. 2, Fairfax	NW¼ Sec. 10-25n-6e, Kay County	Absp.	45,000
Skelly Oil Co., Box 157, Lyman	SW¼ Sec. 23-27n-5e, Osage County	Comp.	7,000
Skelly Oil Co., Rt. 2, Jennings	NW¼ Sec. 15-20n-6e, Pawnee County	Absp.	2,200
Skelly Oil Co., Box 37, Carter Nine	NW¼ Sec. 9-26n-6e, Osage County	Absp.	25,000
Skelly Oil Co., Box 511, Seminole	NW¼ SW¼ Sec. 17-9n-6e, Seminole County	Absp.	12,000
Skelly Oil Co., Box 168, Slick	W½ NW¼ Sec. 15-15n-10e, Creek County	Absp.	2,000
Skelly Oil Co., Box 413, Wynona	SW¼ Sec. 24-24n-9e, Osage County	Absp.	2,500
Stanolind Oil & Gas Co., Tonkawa	Tonkawa, 4 mi. south	Absp.	6,000
Sterling Oil & Gas Co., Tulsa	SE Sec. 1-21-11, Osage County	Comp.	*150
Texas Co. (Dela.), Houston, Tex.	NE¼ Sec. 30-25n-8e, Osage County	Absp.	7,960
Texas Co. (Dela.), Houston, Tex.	SE¼ of SE¼ Sec. 2-14n-5e, Lincoln County	Absp.	20,280
Texas Co. (Dela.), Houston, Tex.	W½ of NW¼ Sec. 8-17n-12e, Creek County	Comp.	19,720
Utilities Production Corp., Tulsa	Jennings	Absp.	*1,500
Victor Gasoline Cor., Box 272, Bristow	Bristow	Absp.	6,000
Victor Gasoline Co., R.F.D. 3, Box 99, Stroud	Stroud	Absp.	3,000
Warren Petroleum Co., Box 686, Graham	Sec. 31-2s-3w	Comb.	15,000
Warren Petroleum Co., Harjo	Sec. 7-8n-5e	Comb.	30,000
Warren Petroleum Co., Rt. 8, Box 243, Seminole	Sec. 17-9n-6e		*10,000
Warren Petroleum Co., Oklahoma City	Sec. 30-11n-2w	Absp.	10,000
Warren Petroleum Co., Box 5, Fittstown	3 mi. east of Fittstown	Comb.	¶40,000
Warren Petroleum Co., Box 312, Holdenville	4 mi. west of Holdenville	Comb.	¶20,000
Wentz, L. H., Oil Division, Ponca City	Sec. 34-25n-1w	Absp.	*5,000
Wentz, L. H., Oil Division, Ponca City	Sec. 17-28n-1e	Absp.	3,000
Westoak Gasoline Co., Box 507, Sayre	Sec. 2-19n-23w	Absp.	15,000
Wolverine Petroleum Corp., Drawer B, Wolco	E½ Sec. 24-24n-11e	Absp.	10,000
Wolverine Petroleum Corp., Box 548, Wilson	SW¼ Sec. 22-4n-2w	Absp.	10,000
Wright, Rosa B., Sapulpa	Kellyville	Absp.	5,000

*Shut down. †Owned jointly with Indian Territory Illuminating Oil Co.
¶Jointly owned with J. E. Crosbie, Inc.

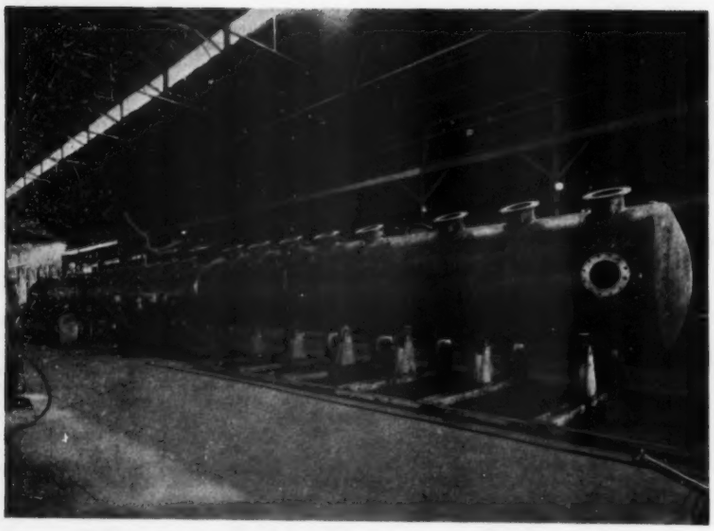
PENNSYLVANIA

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Alum Rock Gas Co., Port Allegany	Fern, Clarion County	Comp.	500
Bayliss & Fasenmeyer, Titusville	Titusville, 2 mi. S	Comp.	500
Carpenter, M. A., Karns City	Fairview Township	Comp.	200
Carnegie Natural Gas Co., Lone Pine	Washington County	Absp.	1,000
Carnegie Natural Gas Co., Waynesburg	Greene County	Absp.	4,500
Chambers Oil Co., Oil City	Warren County	Comp.	150
Clinger Oil & Gas Co., Tidioute	Fagundus, Triumph Township, Warren County	Comp.	500
Clinger Oil & Gas Co., Tidioute	Hastings, Howe Twp., Forest County	Comp.	500
Cochran, John G. & Co., Sheffield	Lot 438, Sheffield Township	Absp.	*1,100
Cook Oil Lease, Kellettville	Forest County	Comp.	125
Daugherty, C. R., Butler	Herman, Butler County	Comp.	30
Daugherty, C. R. & Co., Butler	Oakdale, Allegany County	Comp.	70
Daugherty, C. R. and M. G., Butler	Petrolia, Butler County	Comp.	45
Dempseytown Gas Co., Port Allegany	Leeper, Clarion County	Comp.	150
Dempseytown Gas Co., Port Allegany	Shippensville, Clarion County	Comp.	75
Dempseytown Gas Co., Port Allegany	Venus, Clarion County	Comp.	40
Edwards, E. A., Titusville	Titusville	Comp.	170
Elswerth, Hefron & Co., Lucinda	Lucinda	Comp.	*400
Elswerth, Hefron & Co., Arthur	Lucinda	Comp.	*400
Ellenburger, W. J., & Sons, Karns City	Karns City	Comp.	300
Elliott Bros., Chicora	Chicora	Comp.	500
Equitable Gas Co., Rogersville	Center Twp., Greene County	Absp.	10,000
Equitable Gas Co., Clarksville	Deemston Twp., Washington County	Comp.	500
Federal Oil & Gas Co., McDonald	McDonald	Comp.	100
Fleming, J. E., Titusville	Warren County	Comp.	500
Forest Chemical Co., Sheffield	Sheffield Township	Absp.	*300
Gould, Nancy E., & Son, Butler	Penn. Township, Butler County	Comp.	10
Hadden, James B., Sheffield	Henry's Mill	Comp.	100
Hickey & Rieg, Clarendon	Henry's Mill	Comp.	300
Haskell Bros., Pleasantville	Southwest Township, Warren County	Comp.	100
Haskell, Roth & Bayliss, Tidioute	Triumph Township, Warren County	Comp.	1,000
Hope Construction & Refining Co., Brave	Brave	Absp.	20,000
Hope Construction & Refining Co., Imperial	Imperial	Charcoal	3,600
Hope Construction & Refining Co., McKeesport	McKeesport	Charcoal	*2,600
Jennings, E. H., Bros. Co., Pittsburgh	Fayette Township, Allegheny County	Comp.	1,000
Jennings, E. H., Bros. Co., Pittsburgh	Fayette Township, Alleghney County	Comp.	150
Jennings, E. H., Bros. Co., Pittsburgh	Wetzel Co.	C-A	1,000
Jennings, E. H., Bros. Co., Pittsburgh	Wetzel Co.	C-A	100
Mars Co., The, c/o Hampton Station, Oil City	Pinegrove Twp., Venango County	Absp.	4,000
Mars Co., The, Lewis Run	Lewis Run	Absp.	*6,500
Mars Co., The, Van	Van	Absp.	7,500
Mars Co., The, Clarion	Paint Twp., Clarion County	Absp.	*1,800
Mars Co., The, East Hickory	Hickory Twp., Forest County	Absp.	*1,500
Moore, Way & Harrison, Titusville	Titusville	Comp.	100
Morgan & Montgomery, McKees Rocks	Corapolis	Comp.	100
North Penn Gas Co., Port Allegany	Sharon	Absp.	*600
Pittsburgh Oil & Gas Co., Pittsburgh	Clarion	Comp.	150
Pittsburgh Oil & Gas Co., Pittsburgh	Miola	Comp.	150
Pittsburgh Oil & Gas Co., Pittsburgh	Fairview Twp., Butler County	Comp.	50
Porter Bros., Catfish	Catfish, 1 mi. E	Comp.	100
President Oil Co., Emlenton	Bruin, 2 mi. W	Comp.	50
President Oil Co., Emlenton	Emlenton, 2 mi. SW	Comp.	50
President Oil Co., Emlenton	Fryburg, 6 mi. N	Comp.	500
Red Brush Oil Co., Tidioute	Near Tionesta	Comp.	40
Red Brush Oil Co., Tidioute	7 mi. south Tionesta	Comp.	40
Riddle Farm Oil Co., Karns City	Karns City, ½ mi. S	Comp.	50
Ritzert Bros., Chicora	Chicora	Comp.	70
Say, George K., Estate, Karns City	Perry Twp., Armstrong County	Comp.	35
Sloan & Zook Co., Kane	Central	Absp.	1,500
South Penn Oil Co., Pittsburgh	Titusville	Comp.	100
South Penn Oil Co., Pittsburgh	President	Comp.	500
South Penn Oil Co., Pittsburgh	South Heights	Comp.	550
South Penn Oil Co., Pittsburgh	Bradford	Comp.	550
South Penn Oil Co., Pittsburgh	Chicora	Comp.	150
South Penn Oil Co., Pittsburgh	Chaffee	Comp.	25
South Penn Oil Co., Pittsburgh	Parker	Comp.	100
South Penn Oil Co., Pittsburgh	Freeport	Absp.	600
South Penn Oil Co., Pittsburgh	Guffey	Comp.	150
South Penn Oil Co., Pittsburgh	Washington	Comp.	100
South Penn Oil Co., Pittsburgh	Taylorstown	Comp.	100
South Penn Oil Co., Pittsburgh	Evans City	Comp.	150
South Penn Oil Co., Pittsburgh	Evans City	Comp.	*450
South Penn Oil Co., Pittsburgh	Evans City	Comp.	*125
South Penn Oil Co., Pittsburgh	Pleasantville	Comp.	300
South Penn Oil Co., Pittsburgh	Porcupine	Comp.	650
South Penn Oil Co., Pittsburgh	Baden	Comp.	*50
South Penn Oil Co., Pittsburgh	Sturgeon	Comp.	1,500
South Penn Oil Co., Pittsburgh	Evans City	Comp.	25
South Penn Oil Co., Pittsburgh	Tiona	Comp.	450
South Penn Oil Co., Pittsburgh	Henrys Mills	Comp.	300
South Penn Oil Co., Pittsburgh	Hooker	Comp.	100
South Penn Oil Co., Pittsburgh	Noblestown	Comp.	1,600
South Penn Oil Co., Pittsburgh	Noblestown	Comp.	125
Success Oil Co., Titusville	9 miles south Titusville	Comp.	1,500
Surety Oil Co., Titusville	Titusville	Comp.	1,000
Tarbell & Co., Grand Valley	Grand Valley	Comp.	80
Thomas, R. L., Tidioute	Triumph Twp., Warren County	Vac.	200
Tompsett Bros., Tidioute	Triumph Twp., Warren County	Vac.	200
Triangle Co., McKees Rocks	Coraopolis	Comp.	300
Triumph Petroleum Co., Tidioute	2 miles west Tidioute Warren County	Comp.	200
Wahl, A. R., Evans City	Forward Twp.	Comp.	300
Warner-Caldwell Oil Co., Titusville	2 mi. north Titusville	Comp.	1,000

*Shut down.

TEXAS

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Airolene Gasoline Corp., Shamrock	Sec. 9, Blk. 27, H.&G.N. Sur., Wheeler County	Absp.	8,000
Anzac Oil Corp., Coleman	M. T. Overall Lse., C.H.&H. R.R. Survey 12, Blk. 1, Coleman County	Comp.	1,000
Arab Gasoline Corp., Eastland	Eastland-Ranger Dist.	Absp.	25,000
Arkansas Fuel Oil Co., Shreveport, La.	Smith Lse., Castleberry Heirs, Gregg County	Absp.	35,000
Arkansas Fuel Oil Co., Shreveport, La.	Bayless Lse., Hanks Heirs Marion County	Absp.	15,000
Barnsdall Oil Co., Tulsa, Okla.	SW¼ Sec. 18-42-2s, Ector County	Absp.	15,000
Big Lake Oil Co., Pittsburgh	Sec. 2, Blk. 2, Reagan County	Absp.	50,000
Buckeye Natural Gasoline Corp., Tulsa, Okla.	Magic City	Absp.	18,000
Cabot Carbon Co., Wickett	S½ NE¼ Sec. 3, University Land, Blk. 16, Ward County	Absp.	25,000
Cabot Carbon Co., Kermit	S½ NE¼ Sec. 3, Public School Land, Blk. B-3, Winkler County	Absp.	15,000
Canadian River Gas Co., Amarillo	Bivins Sta., Moore County	Absp.	30,000
Cannon Gasoline Co., Amarillo	2 mi. north Amarillo	Comp.	5,000
Cargray Corp., Amarillo	Sec. 46, Blk. 4, I.&G.N. R.R. Sur., Carson County	Absp.	100,000
Chief Refining Co., Gladewater	Johnson lease, M. Dillard Sur.	Comp.	*5,000
Cities Service Oil Co., Odessa	SE¼ SE¼ Sec. 34-43-1n, Ector County	Absp.	35,000
Cities Service Oil Co., Pampa	N½ Sec. 136, Blk. 3 I.&G.N. Sur., Gray County	Absp.	30,000
Clymore Co., Inc., Refugio	Refugio	Absp.	30,000
Coltexo Corp., Lefors	Lefors	Absp.	30,000
Columbian Gasoline Corp., Shamrock	Shamrock	Absp.	5,000
Consolidated Gasoline Co., Cisco	1 mi. south Eastland	Absp.	12,000

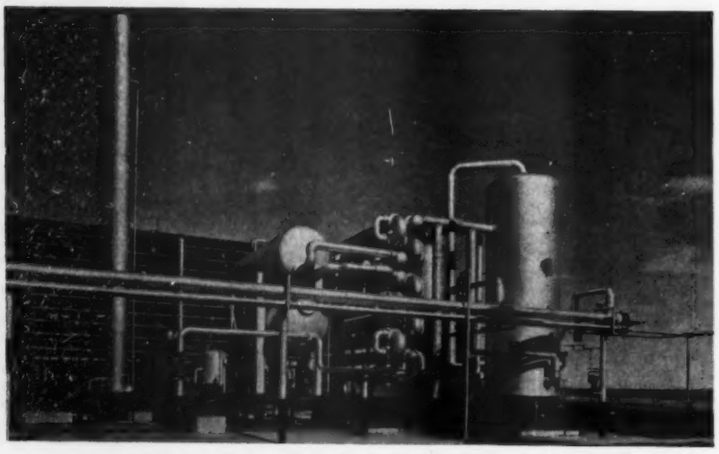


66-inch and 78-inch x 97-foot TULSA-TYPE Naphtha Rerun Tower

See Our Exhibit at INTERNATIONAL PETROLEUM EXPOSITION TULSA MAY 14-21

AT THE EXPOSITION

Tulsa Boiler Will Display a complete Miniature Natural Gasoline Plant, built to one-sixth actual size. We also invite you to visit our Shops while in Tulsa and see how TULSA-TYPE Builds Right!



LATEST DESIGN Tulsa-Type DISTILLATION UNIT FOR NATURAL GASOLINE PLANT

TULSA TYPE

Tulsa Boiler & Machinery Co.

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Danciger Oil & Refineries, Inc., Fort Worth	Danciger	Absp.	40,000
Danciger Oil & Refineries, Inc., Fort Worth	Lefors	Absp.	20,000
Darby Lynde Co., Tulsa, Okla.	Electra	Comp.	2,500
Deep Oil Development Co., Wichita Falls	Wilson Estate, A.T.N.C. lands, Blk. 119, Archer County	Comp.	4,000
Deep Oil Development Co., Wichita Falls	Munger lease, Wichita County	Comp.	4,000
Desdemona Gasoline Co. of Texas, Desdemona	Eastland County	Absp.	10,000
Duval Gasoline Co., Houston	Sweden field, Duval County	Absp.	10,000
General American Oil Co., Dallas	Gladewater	Comp.	10,000
Gladewater Gasoline Co., Gladewater	Gladewater	Comp.	10,000
Graham Oil & Gas Co., Graham	Morrison Farm	Absp.	8,000
Gregg-Tex Gasoline Corp., Longview	Sanchez Sur., Gregg County	Comp.	125,000
Gulf Refining Co., Monahans	Ward County	Absp.	25,000
Gulf Refining Co., Overton	Overton	Comp.	15,000
Hanlon Gasoline Co., Tulsa, Okla.	2 mi. south Breckenridge	Absp.	60,000
Hanlon Gasoline Corp. of Texas, Tulsa, Okla.	4 mi. northeast Gladewater	Comp.	150,000
Henderson Co., Sanford	Sec. 82, Blk. 46, H.&T.C. Survey	Absp.	75,000
Hercules Gasoline Co., Kilgore	Mary Van Winkle Sur., SE portion of 93.5 A., Gregg County	Comp.	40,000
Huber Corp., J. M. Borger	Sec. 28. A.&B. Survey, Hutchinson County	Absp.	30,000
Humble Oil & Ref. Co., Overton	W. W. Sims Survey, Rusk County	C-A	35,000
Humble Oil & Ref. Co., Conroe	Tom Trevathan Survey Montgomery County	C-A	27,000
Humble Oil & Ref. Co., Dickinson	John Sellers Survey, Galveston County	Absp.	13,000
Humble Oil & Ref. Co., Corpus Christi	Flour Bluff & Encinal Subdvn., Nueces County	C-A	15,000
Humble Oil & Ref. Co., Bloomington	Agaton Sisneros Survey, Calhoun County	Absp.	25,000
Humble Oil & Ref. Co., Overton	Isaac Ruddle Survey, Rusk County	C-A	21,000
Humble Oil & Ref. Co., Overton	T. J. Martin Survey, Rusk County	C-A	46,000
Humble Oil & Ref. Co., Neches	David Clark Survey, Anderson County	C-A	11,000
Humble Oil & Ref. Co., Bellville	S. C. White Survey, Austin County	C-A	12,000
Humble Oil & Ref. Co., Rising Star	Juan Delgado Survey, Brown County	C-A	7,000
Humble Oil & Ref. Co., Tomball	C. Goodrich Survey, Harris County	C-A	30,000
LaSalle Petroleum Co., Burkburnett	Burkburnett	Comp.	*5,000
Lisbon Gasoline Co., Inc., Shreveport, La.	Cadena Sur., E. E. Moores lease, Rusk County	Absp.	35,000
Lisbon Gasoline Co., Inc., Shreveport, La.	Brown Survey, W. T. Grissom lease, Rusk County	Absp.	25,000
Lone Star Gas Co., Gordon	2 mi. east Gordon	Absp.	25,000
Lone Star Gas Co., Rt. 1, Cisco	7 mi. SE Moran	Absp.	5,000
Lone Star Gas Co., Petrolia	3 mi. south Petrolia	Absp.	15,000
Lone Star Gas Co., Trinidad	1 mi. SE Trinidad	Absp.	35,000
Lone Star Gas Co., Box 488, Ranger	9 mi. south Ranger	Comp.	2,000
Lone Star Gasoline Co., Ranger	Ranger (3)	Absp.	65,000
Lone Star Gasoline Co., Ranger	Eastland	Absp.	6,500
Lone Star Gasoline Co., Breckenridge	Breckenridge	Absp.	35,000
Magnolia Petroleum Co., Dallas	Sec. 17, Blk. 13, H.&T.C. Sur. Wilbarger County	Comp.	5,000
Magnolia Petroleum Co., Dallas	Wm. Dubose Sur., Wichita County	Comp.	4,000
Magnolia Petroleum Co., Dallas	Matt Finch Sur., Eastland County	Absp.	5,000
Magnolia Petroleum Co., Dallas	Smelzer Sur., Eastland County	Comp.	4,500
Magnolia Petroleum Co., Dallas	Sec. 91, Blk. 4, I.&G.N. Sur., Carson County	Comp.	4,500
Magnolia Petroleum Co., Dallas	Sec. 30, Blk. B-2, H.&G.N. Survey, Gray County	Comb.	9,500
Magnolia Petroleum Co., Dallas	Sec. 152, Blk. 3 H.&G.N. Sur., Gray County	Absp.	9,000
Magnolia Petroleum Co., Dallas	Sec. 170, Blk. 3-T T.N.O. Survey, Moore County	Absp.	20,000
Magnolia Petroleum Co., Dallas	Sec. 1, Blk. 26, Public School Lands, Winkler County	Absp.	18,000
Manhattan Gasoline Co., Sinton	Plymouth, San Patricio County	Absp.	30,000
Marr Natural Gasoline Co., Tyler	L. N. Sparks Survey, Rush County	C-A	2,000
Mid-Co Oil & Ref. Co., Corsicana	Cayuga field, Henderson County	Absp.	10,000
Midland Gasoline Co., The, Conroe	Montgomery County	Absp.	20,000
Mockley Petroleum Co., Fry	Chas. Betts Sur. No. 625, Brown County	Absp.	20,000
Natural Gasoline Corp., Aransas Pass	T. P. McCampbell Subd.	Abso.	65,000
Nine Oaks Gasoline Corp., Electra	Gladewater	Comp.	1,000
Ohio Oil Co., Eliasville	Stephens County	Absp.	15,000
Ohio Oil Co., Eliasville	Stephens County	Absp.	10,000
Parade Gasoline Co., Inc., Shreveport, La.	C. C. & J. E. Giles lease Joiner area, Rusk County	C-A	110,000
Phillips Petroleum Co., Bowers	W½ Sec. 62, H.&G.N. Sur., Blk. B-2, Gray County	Absp.	50,000
Phillips Petroleum Co., Belico	NE NW Sec. 51, H.&G.N. Sur., Wheeler County	Absp.	12,000
Phillips Petroleum Co., Canadian	NW SE Sec. 1, Blk. X02, Hutchinson County	Absp.	20,000
Phillips Petroleum Co., Carson	W Center Sec. 115, I.&G.N. Sur., Blk. 5, Carson County	Absp.	20,000
Phillips Petroleum Co., Eliasville	6.88 A. N½ Sur., No. 1174 T.E.&L. Stephens County	Absp.	12,000
Phillips Petroleum Co., Goldsmith	SE¼ Sec. 33, Blk. 44, Twp. 1n. T.&P. Sur., Public School Lands, Ector County	Absp.	35,000
Phillips Petroleum Co., Gray	E½ Sec. 32 H.&G.N. Sur., Blk. 2, Gray County	Absp.	100,000

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Phillips Petroleum Co., Frankell	5 A. SE SW Sec. 51, T.&P. Sur., Blk. 6, Stephens County	Absp.	8,500
Phillips Petroleum Co., Herron City	SE 20 P. J. Humphrey Sur., 153 A. Young County	Absp.	9,000
Phillips Petroleum Co., Hohertz	12 A. Sec. 63, Blk. 4, T.&P. R.R. Sur., Stephens County	Absp.	5,000
Phillips Petroleum Co., Ibex	NW¼ Sec. 28, B.A.L., Shackelford County	Absp.	20,000
Phillips Petroleum Co., Johnson	Cen. 60 A. S½ Sec. 60, Blk. 46, H.&T.C. Sur., Hutchinson County	Absp.	50,000
Phillips Petroleum Co., Judkins	West 60 A. N½ S½ Sec. 1, University Land, Blk. 35, Ector County	Absp.	15,000
Phillips Petroleum Co., Lefors	NE¼ NE¼ Sec. 56, Blk. 25, H.&G.N. Sur., Gray County	Absp.	15,000
Phillips Petroleum Co., Lodi	NE Cor. Wm. R. Myers Sur., Cass County	Absp.	40,000
Phillips Petroleum Co., McCamey	NE NE Sec. 216, C.C.S.D. & R.G.N.G. R.R. Sur., Blk. F., Crane County	Absp.	30,000
Phillips Petroleum Co., North	SW¼ 35 & NW¼ 36, I.&G. N. Sur., Blk., 3, Gray County	Absp.	60,000
Phillips Petroleum Co., Pampa	W½ SW¼ Sec. 88, H.&G.N. Sur., Blk. B-2, Gray County	Absp.	60,000
Phillips Petroleum Co., Panhandle	SW¼ Sec. 113, I.&G.N. R.R. Sur., Blk. 5, Carson County	Absp.	15,000
Phillips Petroleum Co., Pantex	SE Cor. Mary Whitley Sur., Blk. 8, Hutchinson County	Absp.	60,000
Phillips Petroleum Co., Pioneer	W. Cen. Part W. A. Eaken 132 A. Tract, Eastland County	Absp.	15,000
Phillips Petroleum Co., Ray	Center W½, Sec. 164 T.& N.O. R.R. Sur., Blk. 3-T, Moore County	Absp.	10,000
Phillips Petroleum Co., Rock Creek	N NW Sec. 22, Blk. Y, A.&B. Sur., Hutchinson County	Absp.	60,000
Phillips Petroleum Co., South Bend	20 A. N Center J. Garrett Sur., A-108, Young County	Absp.	9,000
Phillips Petroleum Co., Sanford	Sec. 81, Blk. 46, H.&T.C. R.R. Sur., Hutchinson County	Absp.	20,000
Phillips Petroleum Co., Texroy	SE Sec. 3, Blk. B-3 D.&S.E. R.R. Sur., Hutchinson County	Absp.	50,000
Portex Oil Corp., Joaquin	Joaquin field, Shelby County	Absp.	15,000
Portland Gasoline Co., Pampa	SW¼ Sec. 163, Blk. 3, I.& G.N. R.R. Survey, Gray County	C-A	30,000
Pure Oil Co., Van	Van Zandt County	C-A	25,000
Roeser & Pendleton, Inc., Fort Worth	8 mi. NW Albany	Absp.	30,000
Roeser & Pendleton, Inc., Fort Worth	16 mi. W Albany	Absp.	4,000
Rudco Oil & Gas Co., Tyler	Bearden Farm, Juana Salinas Sur., Eastland County	Comp.	5,000
Sabine Valley Gasoline Co., Inc., Longview	Mary Scott Sur., Gregg County	Comp.	40,000
Shamrock Oil & Gas Corp., Sunray	Sec. 399, Blk. 44, H.&T.C. R.R. Sur., Moore County	Absp.	85,000
Shamrock Oil & Gas Corp., Lefors	Sec. 50, H.&G.N. Sur., Blk. 25, Gray County	Absp.	6,000
Shell Petroleum Corp., Skellytown	SE¼ Sec. 107, Blk. 4, I.& G.N. Survey	Absp.	25,000
Shell Petroleum Corp., Skellytown	NW¼ Sec. 113, Blk. 4, I. & G.N. Survey	Absp.	8,000
Shell Petroleum Corp., Pampa	SW¼ Sec. 83, Blk. 3, I.&G.N. Survey	Absp.	15,000
Sinclair Prairie Oil Co., Longview	J. Moseley Sur., Boston Moore 140 A.	C-A	80,000
Sinclair Prairie Oil Co., Arp	Florence Wilson lease, R. McAnulty Survey	Comp.	70,000
Skelly Oil Co., Stinnett	NW¼ Joseph W. Proctor Sur., Hutchinson County	Absp.	12,000
Skelly Oil Co., Burkburnett	Burkburnett Townsite	Comp.	10,000
Skelly Oil Co., Skellytown	SE¼ SE¼ Sec. 124, Blk. 3, I.&G.N. R.R. Co. Sur., Carson County	Absp.	20,000
Skelly Oil Co., Box 36, Phillips	SW¼ Sec. 4, Blk. B-4, Hutchinson County	Absp.	9,000
Skelly Oil Co., Skellytown	Sec. 88, Blk. 3, I.&G.N. R.R. Co., Sur., Carson County	Absp.	25,000
Skelly Oil Co., Skellytown	NE¼ Sec. 13, Blk. M-21, T.C. R.R., Hutchinson County	Absp.	9,000
Skelly Oil Co., Skellytown	NE¼ NE¼ Sec. 174, Blk. 3, I.&G.N. Sur., Gray County	Absp.	28,000
Smith Bros. Ref. Co., McLean	Kermit	Absp.	40,000
Smith Bros. Ref. Co., McLean	McLean	Absp.	30,000
Southern Minerals Corp., Corpus Christi	Sur. 406 Saxet field	Absp.	25,000
Standard Oil Co. of Texas, El Paso	Sec. 10, Blk. 34, Ward County	C-A	25,000
Texas Co. (Dela.), Olney	B.B.B.&C. R.R. Sur., Blk. A-54, Archer County	Comp.	4,050
Texas Co. (Dela.), Burkburnett	Jackson Haden Sur., A-90, Wichita County	Comp.	14,850
Texas Co. (Dela.), Electra	H.&G.N. Sur., A-654, Wichita County	Comp.	14,350
Texas Co. (Dela.), Johnson	S.P. R.R. Sur., Sec. 26, Blk. L, Foard County	Absp.	6,000
Texas Pacific Coal & Oil Co., Fort Worth	Caddo	Absp.	10,000
Texas Pacific Coal & Oil Co., Fort Worth	Strawn	Absp.	5,000
Texoma Natural Gas Co., Fritch	Fritch	Absp.	90,000
Tucker Oil Co., Wichita Falls	Blk. 83, R.R. V Lds. Sur., Wichita County	Comp.	4,000
United Gas Pipe Line Co., Latex	Jane Thorpe Sur., Panola County	Absp.	8,000
United Gas Pipe Line Co., Agua Duice	Ross Peters Subdvn, No. 2, Andres Fernandez de la Fuente Grant, Nueces County	Absp.	45,000
United Gas Pipe Line Co., Refugio	Sec. 6, Lot 2, Refugio Town Tract, Refugio County	Absp.	25,000
Waggoner, W. T., Estate, Vernon	Sur., H.&T.C. R.R., Sec. 42, Blk. 4, Wilbarger County	Absp.	12,000
West Texas Gas Co., Lubbock	Sec. 45, Blk. 2, A.B.&M. Sur., Potter County	Absp.	30,000
Wilcox, H. F., Oil & Gas Co., Tulsa, Okla.	SW¼ Sec. 62, Blk. 3, I.&G.N. R.R. Sur., Gray County	Comp.	10,000

*Shut down.

WEST VIRGINIA

American Oil Development Co., Frew	Tyler County	Comp.	1,000
American Oil Development Co., Hebron	Pleasants County	Comp.	200
American Oil Development Co., Meadville	Tyler County	Comp.	200
Blue Creek Oil & Gas Co., Charleston	Blue Creek	Comp.	3,500
Carbide & Carbon Chemicals Corp., New York City	Diamond	Comp.	2,500
Carbide & Carbon Chemicals Corp., New York City	Hastings	Comp.	1,000
Carnegie Natural Gas Co., Hundred	Hundred	Absp.	3,300
Carnegie Natural Gas Co., Underwood	Underwood	Absp.	3,000
Dinsmoor & Co., St. Marys	Pleasants County	Comp.	375
Dun Mar Oil & Gas Co., Fairview	Jarke Run	Comp.	50
Federal Oil & Gas Co., Elizabeth	Elizabeth	Comp.	250
Federal Oil & Gas Co., Weston	Weston, 8 mi. south	Comp.	500
Hapgood, Roswell T., & Co., Charleston	Cedar Grove	Char.	5,500
Henaghan & Hanlon, Inc., Sistersville	Finch	Comp.	1,000
Henaghan & Hanlon, Inc., Sistersville	Harrisville	Comp.	1,000
Henaghan & Hanlon, Inc., Sistersville	Harrisville	Comp.	5,000
Henaghan & Hanlon, Inc., Sistersville	Hebron	Comp.	3,000
Henaghan & Hanlon, Inc., Sistersville	Highland	Comp.	2,000
Henaghan & Hanlon, Inc., Sistersville	Highland	Comp.	12,000
Henaghan & Hanlon, Inc., Sistersville	Pike	Comp.	1,500
Henaghan & Hanlon, Inc., Sistersville	Pike	Comp.	3,000
Henaghan & Hanlon, Inc., Sistersville	Rock Run	Comp.	1,000
Henaghan & Hanlon, Inc., Sistersville	West Union	Comp.	500
Hope Constr. & Ref. Co., Pittsburgh, Pa.	Barren Creek	Absp.	12,000
Hope Constr. & Ref. Co., Pittsburgh, Pa.	Bristol	Absp.	8,000
Hope Constr. & Ref. Co., Pittsburgh, Pa.	Spencer	Absp.	*1,000
Hope Constr. & Ref. Co., Pittsburgh, Pa.	Mt. Clair	Absp.	2,500
Hope Constr. & Ref. Co., Pittsburgh, Pa.	Pine Grove	Absp.	40,000
Hope Constr. & Ref. Co., Pittsburgh, Pa.	Salem	Absp.	4,000
Hope Constr. & Ref. Co., Pittsburgh, Pa.	Waverly	Absp.	5,000
Hope Constr. & Ref. Co., Pittsburgh, Pa.	Rachel	Absp.	10,000
Melrose Oil & Gas Co., Sistersville	Gorrell farm, Middlebourne	Comp.	25
Oil & Gas Co., Parkersburg	Ritchie County	Comp.	250
Owens, Libby-Owens, Gas Dept., Charleston	South Malden	Absp.	10,000
Pittsburgh Oil & Gas Co., Pittsburgh, Pa.	R. D., Sistersville	Comp.	150
Pittsburgh Oil & Gas Co., Pittsburgh, Pa.	Macfarlan	Absp.	*1,500
Pure Oil Co., Dawes	Kanawha County	C-A	10,000
Reno Oil Co., Sistersville	Ritchie Co.	Comp.	33
Reno Oil Co., Sistersville	Ritchie Co.	Comp.	50
Reno Oil Co., Sistersville	Ritchie Co.	Comp.	75
Reno Oil Co., Sistersville	Tyler Co.	Comp.	50
Reno Oil Co., Sistersville	Tyler Co.	Comp.	44
Reserve Gas Co., Kennedy	Valley Chapel	Absp.	20,000
Rodgers, M.C. & G.K., Pittsburgh, Pa.	Grantsville	C-A	*500
South Penn Oil Co., Pittsburgh, Pa.	Mannington	Absp.	1,000
South Penn Oil Co., Pittsburgh, Pa.	Bula	Comp.	200
South Penn Oil Co., Pittsburgh, Pa.	Carpenter	Comp.	1,400
South Penn Oil Co., Pittsburgh, Pa.	Newton	Comp.	700
South Penn Oil Co., Pittsburgh, Pa.	Spencer	Comp.	900
South Penn Oil Co., Pittsburgh, Pa.	Fairview	Absp.	1,400
South Penn Oil Co., Pittsburgh, Pa.	Fink	Comp.	700
South Penn Oil Co., Pittsburgh, Pa.	Yawkey	Comp.	1,500
South Penn Oil Co., Pittsburgh, Pa.	Macfarlan	Comp.	400
South Penn Oil Co., Pittsburgh, Pa.	Wolf Summit	Comp.	600
South Penn Oil Co., Pittsburgh, Pa.	Metz	Comp.	500
South Penn Oil Co., Pittsburgh, Pa.	Smithfield	Comp.	1,000
South Penn Oil Co., Pittsburgh, Pa.	Pinch	Comp.	400
South Penn Oil Co., Pittsburgh, Pa.	Pine Grove	Absp.	1,200
South Penn Oil Co., Pittsburgh, Pa.	Rock Creek	Comp.	800
South Penn Oil Co., Pittsburgh, Pa.	Stringtown	Comp.	800
South Penn Oil Co., Pittsburgh, Pa.	Shirley	Comp.	900
South Penn Oil Co., Pittsburgh, Pa.	Tanner	Comp.	400
South Penn Oil Co., Pittsburgh, Pa.	Blue Creek	Comp.	1,400
Tyler Oil Co., Sistersville	Tyler Co.	Comp.	50
Tyler Oil Co., Sistersville	Tyler Co.	Comp.	35
Tyler Oil Co., Sistersville	Tyler Co.	Comp.	25
Union Gasoline & Oil Corp., Moundsvile	Marshall County	Absp.	*3,000
Union Gasoline & Oil Corp., Porter Falls	Wetzel County	Absp.	7,000
Union Gasoline & Oil Corp., Jane Lew	Lewis County	Absp.	3,000
Union Gasoline & Oil Corp., Sedalia	Doddridge County	Absp.	*3,000
Virginia Gasoline & Oil Co., Walgrove	Kanawha County	Absp.	*1,500
Virginia Gasoline & Oil Co., Clendenin	Kanawha County	Absp.	40,000
Virginia Gasoline & Oil Co., Charleston	Kanawha County	Absp.	15,000
Virginia Gasoline & Oil Co., St. Albans	Kanawha County	Char.	3,500
Virginia Gasoline & Oil Co., Hubball	Lincoln County	Char.	12,000
Virginia Gasoline & Oil Co., Stoffel	Kanawha County	Absp.	1,800
Virginia Gasoline & Oil Co., Mammoth	Kanawha County	Absp.	2,500
Virginia Gasoline & Oil Co., Ona	Cabell County	Absp.	18,000
Virginia Gasoline & Oil Co., Sandyville	Jackson County	Char.	40,000
Virginia Gasoline & Oil Co., Three Mile	Kanawha County	Absp.	3,500
Virginia Gasoline & Oil Co., Pad	Roane County	Absp.	*800
Virginia Gasoline & Oil Co., Charleston	Kanawha County	Char.	2,000
Virginia Gasoline & Oil Co., Spencer	Roane County	Char.	12,000
Virginia Gasoline & Oil Co., Louisa, Ky.	Wayne County	Char.	*3,500

WYOMING

Continental Oil Co., Box 66, Columbine	NW¼ Sec. 36-40n-78w, Natrona County	Comp.	3,500
Continental Oil Co., Lance Creek	SE¼ Sec. 31-36n-65w, Niobrara County	Absp.	10,000
Ohio Oil Co., Rocky River	Carbone County	Absp.	*5,000
Ohio Oil Co., Kirby	Hot Springs County	Comp.	3,600
Sinclair Wyoming Oil Co., Bairoil	NE¼ Sec. 10-26n-90w	Comp.	1,200
Sinclair Wyoming Oil Co., Columbine	NE NE Sec. 13-39n-79w	Absp.	5,000
Stanolind Oil & Gas Co., Midwest	Midwest	Comp.	85,000

*Shut down.

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FIELD OPERATIONS

Summarizing the Week's Developments

KANSAS—A discovery well was completed in section 28-17-10w, 1 mile north of the Stumps pool, Ellsworth County. A shallow gas area was opened north of Independence, Montgomery County. Location was announced for a wildcat 2 miles east of Manhattan, eastern Riley County. A wildcat in section 3-22-12w, Stafford County, had oil showing in cores. Two large producers were completed in the Bemis field, Ellis County.

OKLAHOMA—Gas areas were opened in section 2-2n-14ecm, near Guymon, and in section 6-1n-13ecm, east of the Texhoma gas pool, in Texas County, Oklahoma Panhandle. A wildcat in section 12-7-2w, Cleveland County, cored saturation at 7,665-74 feet and may define the Nemaha trend south of the Moore field. An important wildcat south of the Ramsey pool, Payne County, had only a slight showing of oil in cores at 4,922-54 feet, and was coring ahead.

NEW MEXICO—Four new producers were completed in the busy Vacuum area, Lea County, the largest being on the east edge of production and flowing 185 bbls. of oil naturally in four hours. Two producers were completed in the Maljamar district in Eddy County, and a wildcat failure was recorded in that county.

TEXAS—Tests considered of exceptional importance are starting in Liberty, Tyler and Harris counties in the Gulf Coast district of Texas. The Panther pool in Archer County received a setback when tests on the west and south came in as failures. It received a three-quarter-mile northwest extension. Twenty-five wells were completed in the K.M.A. field in Wichita County averaging about 870 bbls. per well. The big proven area in the Wasson field in Gaines and Yoakum counties was increased by an estimated 700-bbl. well in Yoakum County, 4 miles west of the Denver area. Several important outposts in the north end of the Permian Basin are close to completion and showing oil or gas or both. The Avoca pool Palo Pinto producing zone in Jones County was extended a quarter mile west and the Ivy pool Palo Pinto zone in Shackelford County was extended a quarter mile south. The largest of 15 completions in Ector County started at 6,291 bbls. per day, but five others were good for more than 2,000 bbls. a day each. A well in Crane County started at 3,490 bbls. daily. A new deep-hole record for eastern Texas was made by the Humble and Gulf companies in a joint test in Gregg County that has passed the 10,000-foot mark and is drilling in the Lower Marine Trinity series.

TEX-LA-ARK—A gas-distillate well on the Conroe trend in Beauregard Parish, Coastal Louisiana, will call for additional development. A test to 10,973 feet in Lafayette Parish proved a failure. No showings were logged. The Lisbon field in Lincoln Parish, North Louisiana, was defined on the southeast by a dry hole at 5,486 feet. Showings of oil in Columbia County, Arkansas, wildcats near Village and the Buckner pool, were encouraging. A southwest outpost to the Jefferson-Lodi area in Marion County, Texas, is producing distillate and gas, indicating Hill sand production down structure.

CALIFORNIA—The Wilmington field with 100 wells yet to be drilled will hold the lead in California for the remainder of the year and is regarded as the key to the overproduction situation in that state.

Completions in All Fields

(Week Ending May 7, 1938)

	Oil	Gas	Dry	Total	1938 total comp. to date	1937 total comp. to date
N. Y., Pa. and W. Va.	45	11	7	63	1,542	1,334
Ohio	5	9	2	16	315	326
Indiana	0	0	0	0	26	40
Kentucky	10	4	6	20	258	62
Illinois	30	1	2	33	311	23
Michigan	14	0	6	20	271	288
Kansas	19	0	8	27	618	767
Oklahoma	17	2	7	26	593	975
Texas:						
North Central Texas	47	0	22	69	1,036	947
West Texas	39	0	7	46	815	869
Texas Panhandle	13	3	0	16	221	229
East Texas	35	0	0	35	831	733
East Central Texas	4	0	6	10	129	218
East Texas Border	4	1	0	5	60	152
Gulf Coast Texas	21	1	2	24	431	473
Southwest Texas	40	0	9	49	760	1,165
Total Texas	203	5	46	254	4,283	4,786
North Louisiana	7	0	2	9	200	217
Gulf Coast Louisiana	5	0	2	7	164	163
Total Louisiana	12	0	4	16	364	380
Arkansas	4	0	2	6	85	44
Montana	2	0	0	2	22	41
Wyoming	2	0	1	3	57	32
Colorado	0	0	0	0	3	6
New Mexico	9	0	2	11	208	254
Utah	0	0	0	0	0	0
California	17	1	6	24	471	497
Total United States	389	33	99	521	9,427	9,855
Total previous week	371	22	98	491		
Difference	18	11	1	30		

Outstanding Fields--Highlights

(Week Ending May 7, 1938)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
Hastings	5	8	3	1,947	518	20,239
McCampbell	10	3	0	0	116	5,410
Saxet	1	6	1	80	598	35,939
Benavides	4	12	3	346	184	10,212
East Texas	36	109	35	1,773	25,063	433,899
Talco	1	4	2	332	630	27,000
K.M.A.	40	176	25	21,837	364	18,150
Ector County	16	97	15	27,141	1,012	34,650
Winkler County	9	19	3	2,361	1,627	37,400
OKLAHOMA						
Dora	3	6	2	415	57	5,025
Oklahoma City	3	15	1	887	2,442	119,975
KANSAS						
Barton County	5	19	1	1,859	310	9,180
Ellis County	3	18	2	5,927	314	11,040
Rice County	4	18	2	1,027	1,146	34,580
Russell County	5	36	7	2,312	1,066	30,940
NEW MEXICO						
Lea County	14	95	5	1,490	1,714	96,140
LA-ARK-TEX						
Rodessa, Ark.	1	11	0	0	80	7,520
Rodessa, La.	1	1	2	805	457	41,225
Rodessa, Tex.	7	16	4	935	428	39,255
Lisbon, La.	5	15	2	1,960	203	8,550
Schuler, Ark.	4	17	4	2,750	48	14,520
MICHIGAN						
Buckeye	4	18	3	335	400	24,100
ILLINOIS						
Central Illinois	31	130	30	7,606	470	35,010
CALIFORNIA						
Wilmington	8	34	8	21,218	447	99,200

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Southwest Texas District

By
F. L. SINGLETON

Eight Widely Spaced Wells Are Drilling in Alice Pool

CORPUS CHRISTI, Tex., May 9.—The anticipated drilling campaign in the new Alice field, Jim Wells County, is on the way as eight active operations were listed at the close of the week. The wells are widely spaced in every direction from the discovery well which will give early information of the potentiality of this structure.

Approximately 3½ miles north of the discovery well, Cox & Hamon No. 1 W. R. Perkins and W. L. Goldstrom No. 1 Reed & Lindsay, an east offset to the discovery, have been spudded. Due north, about 4,400 feet, Conroe Drilling Co. is drilling No. 1 Reed & Lindsay. West of the discovery and offsetting Tom Graham No. 1 Martens, a gas well, Southern Minerals is drilling below 1,710 feet in No. 1 Trussells. Due east about 5,800 feet, Earl Calloway and others No. 1 Cook is drilling below 2,000 feet, while offsetting the well, Howell and others are drilling No. 2 and 3 Reed & Lindsay.

The first wildcat along this trend since the completion of the discovery well, is being started by Humble Oil & Refining Co. on the F. C. Tarrant and others lease in lot 4 of the Charles Seefled Farm Lot Subdivision in the J. Poitevent Survey No. 205, 2½ miles northeast of Ben Bolt and 4½ miles east and south of the Alice field.

East of the Plymouth field, San Patricio County, Humble Oil & Refining Co. No. 1 Smith and Tolbert continues to show salt water on production tests and the likelihood of opening a field of any consequence is not encouraging. After recovering junk which was lost in the hole, the casing was perforated at 4,816-17 feet, and on a 12-minute drill stem test, it tested 720 feet of mud and 600 feet of salt water. The perforations have been squeezed off and another test is to be made.

In the newly opened East White Point field, San Patricio County, Plymouth Oil Co. was preparing to complete three wells which will extend the field in three directions. No. 2 Nelson, flowed oil on a 15-minute drill stem test at 5,640-77 feet. Oil sand was logged at 5,671-77 feet, total depth, and casing is being cemented. No. 2 Kellog cored oil sand at 5,659-65 feet, total depth, and casing is being cemented following the running of a Schlumberger survey. No. 1 T. B. Owens, 1,300 feet west of production has casing set on bottom at 5,668 feet to test an oil sand topped at 5,657 feet.

In the White Point gas field, due west of the above field, J. K. Culton is preparing to core ahead in No. 1 White Point Development Co. after making two unsuccessful drill stem tests. Sand with an oil odor was logged at 4,910-20 feet, and the drill stem tests failed due to the testing tool slipping.

In the south central part of Nueces County, and about 7½ miles from the town of Driscoll, Joe W. Cosner staked location for a 6,000-foot wildcat on the John LaPrelle, Jr. lease, block 8, Robert and White subdivision of the Hoffman Petronila Ranch, Cuadrilla Irrigation Co. Survey. Protection acreage is held by Stanolind Oil & Gas Co. and Pan American Production Co. Three miles west of London, Corpus Christi Refining Co. No. 1 C. R. Howington was drilling below 6,400 feet, the contract depth is 6,500 feet. A Schlumberger survey and side wall cores will be made of all prospective horizons. South of Robstown, Mills Bennett Production Co. No. 1 Fred Talley, is drilling below 4,600 feet. Sand having a slight gas odor was cored at 3,862-93 feet.

In the southern part of the county, casing was being cemented preparatory to completing two wells in the South Clara Driscoll field, Wellington Oil Co. No. 3 Dugger has cemented casing on bottom after a 20-minute drill stem test at 5,339-82 feet showed 270 feet of oil, 17 pounds of pressure and 15 feet of salt water. Navarro Oil Co. No. 1 Houser cemented casing at 5,286 feet after plugging back

minute drill stem test at 5,314-17 feet, tested 1,650 feet of oil and 70 pounds of pressure.

In the West Saxet field Southern Minerals Corp. No. 1-B Rand Morgan, due west of the discovery well in the 5,600-foot sand, and about 1,000 feet northwest of the discovery well in the 3,800-foot sand, was abandoned after showing only a small amount of oil and wash water when tested through perforated casing at 3,872-74½ feet. Location is in block 52, A.B.&M. Survey No. 411. The same company's No. 1 French which has been shutdown awaiting the outcome of the above test has been abandoned. It missed the discovery sand and was scheduled to test the 3,800 foot sand.

In the Luby field, Nueces County, one well was completed and two others scheduled to be tested. Seaboard Oil Corp. No. 20 James Luby, flowed 195 bbls. on a potential test through a ⅛-inch choke. Production was obtained by perforating the casing 5,065-68½ feet. Location is in section 3 block 1, Luby Subdivision. No. 9 Luby cored sand to a total depth of 5,075 feet and casing is being cemented. No. 23 Luby, is bottomed at 5,197 feet and a test will be made of the 5,000 foot horizon.

One and a half miles northeast of Kaney, Calhoun County, Adams & Lyles are moving in for a test in the Lemel Walker Survey. The Heyser field, gained another producing horizon with the completion of Magnolia Petroleum Co. No. 7 Lander, J. E. Galban Survey. The hole is bottomed at 6,068 feet and the well flowed 71 bbls. in 12 hours, after perforating casing at 5,916-18½ feet.

Interest along the Balcones Fault Line district is centered on Red Bank Oil Co. No. 1 H. H. Coffield, Burleson County which is preparing to make a second drill stem test in the Edwards lime. The well topped the Del Rio lime at 5,832 feet, and the Georgetown at 5,890 feet. A good odor and a slight stain with a taste of salt was logged at 6,169-70 feet, and from 6,170-71 feet, soft Edwards lime with slight saturation was cored, with no taste of salt. A 4-minute drill stem test at 6,157-71 feet, using a wall packer, which leaked slightly throughout the test, showed 930 feet of drilling mud, slightly cut with oil and a fair show of gas with no taste of salt. Better recovery is expected in the second drill stem test.

In Dimmitt County, Paul Texas No. 1 McKnight swabbed salt water at a plugged back depth of 2,850 feet and is preparing to shoot the casing for another test at 2,450-55 feet.

COMPLETED WELLS

Completed wells in proven Southwest Texas fields with their total depth and initial 24-hour production of the producing wells were as follows:

Bexar County

Somerset field: Edward Rosenberg No. 1 Carle, 1,028 feet, 10 bbls., pumping.

Duval County

Benavides field: Hiawatha Oil & Gas Co. No. 10 Parr, 4,752 feet, 164 bbls. 5/32-inch choke. Navarro Oil Co. No. 3-A Rossi, 5,340 feet, 149 bbls., 12 hours, ¼-inch choke. Nordan & Morris No. 2 West, 5,386 feet, 33 bbls., 6 hours, ¼-inch choke. Hoffman field: Cox-Hamon and others No. 20 Cuellar Brothers, sand 2,804-24 feet, 70 bbls., jetting. Lundell field: Government Wells Oil Co. No. 22 Lundell, 1,530 feet, 9 bbls. per hour, ¼-inch choke. Seven Sisters field: Reynosa Oil Co. No. 1-B Welder, 2,645 feet, 5 bbls. per hour ⅜-inch choke.

Caldwell County

Branyon field: Matel Petroleum Co. No. 3-E Young, 2,338 feet, 52 bbls., 12 hours, pumping. Martel Petroleum Co. No. 4-E Young, 2,360 feet, 81 bbls. oil, 20 bbls. water, pumping. Martel Petroleum Co. No. 7-E Young, 2,339 feet, 114 bbls. oil, 6 bbls. water. Dale field: Ralph Ogden No. 4-A Dinges, 2,641 feet, 10 bbls., pumping. Luling field: Murchinson & Reed No. 7 Jennings, 2,080 feet, 100 bbls. oil, 25 bbls. water, pumping. Philtop Oil & Gas Co. No. 8 Dorn, 2,088 feet, 200 bbls., pumping. Taylor Refining Co. No. 3 Dorn, 2,121 feet, 76 bbls. oil, 9 bbls. water, pumping. Salt Flats, Pummel & Brady No. 1 Jackson, 2,642 feet, 10 bbls. pumping.

Guadalupe County

Darst Creek field: Chiquita Oil Co. No. 2 Tadlock, 2,633 feet, 125 bbls. oil, 109 bbls. water. Dunlap field: D. G. Herring No. 2 Appling, 2,298 feet, 35 bbls. pumping.

McMullen-Live Oak Counties

Ezzell field: Bleak Hill Oil Co. No. 7 Viteri, 1,582 feet, 38 bbls., pumping. Harry Ezzell No. perforated casing 1,537½-39½ feet, 29 bbls., 10 hours, pumping.

Nueces County

Luby field: Seaboard Oil Co. No. 8 Luby, perforated casing 5,066½-70 feet, 122 bbls., ⅛-inch choke. Seaboard Oil Co., No. 18 Luby, 5,070 feet, 162 bbls., ⅛-inch choke. Seaboard Oil Co. No. 21 Luby, 5,073 feet, 130 bbls., ⅛-inch choke. Stanolind Oil & Gas Co. No. 6 McCann, perforated casing 5,066½-70 feet, 135 bbls., ⅛-inch choke. Stanolind Oil & Gas Co. No. 7 McCann, 4,355 feet, 113 bbls. ⅛-inch choke. Saxet field: Porter-Snowden No. 2 Harrell, 4,830 feet, 80 bbls., ⅛-inch choke. West Saxet field: Phillips Petroleum Co. 1-A Rand Morgan, 7,004 feet, abandoned. Phillips Petroleum Co. No. 5 McKenzie, perforated casing 5,816-18 feet, 233 bbls., 5/32-inch choke. Renwar Oil Co. No. 6 McKenzie, perforated casing 5,804-08 feet, 112 bbls., ⅛-inch choke. Renwar Oil Co. No. 1 D. W. Nash, 5,832 feet, 287 bbls. 11/64-inch choke.

Refugio County

Tom O'Connor field: Hewitt & Dougherty No. 57 Lambert, 5,930 feet, plugged back 5,859 feet, 628 bbls., ¼-inch choke. Hewitt & Dougherty No. 69 Lambert, 5,930 feet, plugged back 5,860 feet, 583 bbls., ¼-inch choke. Union Production Co. No. 71 Lambert, perforated casing 5,887-5,900 feet, 441 bbls., ¼-inch choke. Quintana Petroleum Co. No. 2 Heard, 5,960 feet, 1,235 bbls., ⅜-inch choke.

San Patricio County

East White Point field: Plymouth Oil Co. No. 1 Owen, sand 5,675-79 feet, 183 bbls., ¼-inch choke.

Victoria County

Keeran field: Gulf Oil Corp. No. 13 Keeran Estate, perforated casing 5,850-63 feet, 525 bbls., ¼-inch choke. McFaddin field: Barnsdall Oil Co. No. 8 McFaddin, sand 4,374-4,402 feet, 100 bbls., 7/64-inch choke. Transwestern Oil Co. No. 7-E McFaddin, sand 4,404-20 feet, 113 bbls., ⅛-inch choke. Heyser field: Magnolia Petroleum Co. No. 7 Lander, perforated casing 5,916-18½ feet, 71 bbls., 12 hours, 7/64-inch choke.

Webb County

Killam field: O. W. Killam No. 27 Garcia, sand 1,999½-2,002½ feet, 45 bbls., pumping.

Zapata County

Escobas field: Dunlap Oil Co. No. 34 Trevino, sand 1,350-79 feet, 20 bbls., pumping. Texas Co. No. 113 Measles, 1,263 feet, 21 bbls., pumping.

California Field Report

By
L. P. STOCKMAN

Wilmington Will Head All State Fields During Year

LOS ANGELES, Calif., May 9. — The Wilmington field continues to hold the key to the present overproduction situation in California and will probably head the production column for the balance of the year unless something is done to make curtailment more effective. Indications point to the drilling of at least another 100 wells in the field.

Eight new wells and one recompletion were recorded in Wilmington during the past week with the result that 21,218 bbls. per day of new production was recorded. The nine wells did not flow at the maximum potential as they were curtailed immediately after completion.

Union Pacific Railroad Co. No. 3-E was completed flowing 1,880 bbls. of 26.8-gravity oil daily from 3,920 feet, and No. 4-E was completed flowing 5,200 bbls. daily from 3,967 feet. The former well was finished with a 6⅝-inch flow string with a packer at 2,887 feet and 2½-inch tubing with packer at 3,454 feet. No. 4-E was finished with 1,015 feet of 8⅝-inch including 603 feet of perforated landed at 3,406 feet and cemented through perforations at 2,918 feet and 544 feet of 6⅝-inch including 370 feet of perforated landed on bottom. Gravity of the oil from the Ranger zone tested 17.9 degrees; from the Upper Terminal zone 21.9 degrees, and from the Lower Terminal zone 26.1 degrees. After completion the well was restricted to the Terminal zone as the Ranger was shut in. Union Pacific No. 81 Offset completed at 3,531 feet after the hole had been plugged back from 3,711 feet was brought in flowing 1,940 bbls. from the Ranger and Terminal zones, but was cut back to the required production. It was finished with a combination liner consisting of 445 feet of 8⅝-inch and 407 feet of 6⅝-inch with the latter being on bottom. Perforations opposite the productive zones were at 2,697-2,777 feet, 2,792-97 feet, 2,808-28 feet, 2,847-2,902 feet, 3,157-3,282 feet, 3,292-3,307 feet, 3,322-80 feet, 3,385-3,449 feet and at 3,469-3,522 feet. The cement job was through perforations at 3,150 feet.

Additional Wilmington Completions

Pacific Western Oil Co. recompleted No. 1 Ronan a few days ago and in doing so may stimulate a lot of remedial work in the older section of the Wilmington field. This well was originally bottomed in the lower zone at 5,700 feet where small production was developed which showed a rapid decline. The well was plugged back to the shoe of the 6⅝-inch water string at 5,590 feet and the casing perforated with 241 shots between 5,180 feet and 5,300 feet. It was returned to production flowing through casing at the rate of 390 bbls. of clean 29.1-gravity oil daily. This intermediate zone has been passed up in every deep well in the western end of the field but the good production developed by Pacific Western will prompt other operators to deepen small wells. Richfield Oil Corp. completed No. 26 Pacific Dock flowing 346 bbls. of 17.3-gravity oil per day from the upper or Ranger zone at 3,216 feet.

Bankline Oil Co. completed No. 18 D. H. C. pumping 182 bbls. of very clean 16.4-gravity oil daily from 3,313 feet after the hole had been finished with an 8⅝-inch water string landed at 3,103 feet and 223 feet of 6⅝-inch liner including 217 feet of perforated landed at 3,312 feet.

The Texas Co. No. 3 Refinery completed pumping 130 bbls. of 16.3-gravity oil per day from 3,400 feet after the hole had been carried down to 3,445 feet and then plugged back because of bottom water. The hole was finished with 243 feet of 6⅝-inch liner including 218 feet of 100-mesh screen landed at 3,400 feet and then gravel packed. The Texas Co. has used more gravel packs in new wells than any other California operator and has apparently found this practice advantageous. D. D. Dunlap Oil Co. has completed No. 12 L. B. flowing 6,050 bbls. per day from all three zones but pinched the production back to the established amount. From the Terminal zones alone after being pinched back to a 24/64-inch bean the well flowed 2,140 bbls. of very clean 26.6 composite gravity and showed a tubing pressure of 750 pounds and a casing pressure of 900 pounds. The Termo Co. completed No. 3-D Long Beach Harbor Department flowing 3,000 bbls. per day and established a potential of 5,100 bbls. per day on a short test. It was finished at 3,900 feet with 1,638 feet of 6⅝-inch liner. A large number of potentials in the Wilmington field are established on short-time flows and must be discounted somewhat.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	April 29		April 22			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	70,214	10,031	.....	.....	140,394	.....
Diesel and gas oil	.....	.....	.....	.....	.....	176,726
Gasoline	51,183	7,312	.....	.....	921,778	988,012
Kerosene	66,878	9,554	.....	.....	199,453	65,030
Foreign exports—						
Crude oil	804,682	114,955	841,114	120,159	8,440,409	4,555,373
Fuel oil	176,943	25,278	181,980	25,997	2,596,244	4,712,048
Diesel and gas oil	527,959	75,423	154,485	22,069	1,979,678	2,181,383
Gasoline	296,785	42,398	215,680	30,811	2,302,680	2,405,850
Kerosene	5,421	774	94,488	13,498	410,971	894,236
Other unfinished oil	.....	.....	.....	.....	.....	290,354
Coastwise-domestic—						
Crude oil	297,190	42,456	162,598	23,228	4,067,888	2,218,300
Fuel oil	205,065	29,295	73,142	10,447	3,795,215	4,873,661
Diesel and gas oil	18,740	2,677	132,079	18,868	621,287	871,082
Gasoline	422,978	60,425	154,105	22,015	4,907,592	3,968,450
Kerosene	.....	.....	4,458	637	106,043	57,387

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	178,662	152,932
Gasoline	.....	.....	.....	.....	9,499	25,778
Asphalt	67,829	9,690	71,141	10,163	212,419	.....
Lubricants	.....	.....	.....	.....	3,009	6,848
Foreign exports—						
Crude oil	86,232	12,319	240,661	34,380	1,901,023	907,349
Fuel oil	22,071	3,153	54,440	7,777	669,194	610,319
Diesel and gas oil	4,106	587	32,445	4,478	529,294	1,001,312
Gasoline	146,540	20,934	.....	.....	1,573,702	1,795,034
Kerosene	87,901	12,557	.....	.....	301,247	252,035
Lubricants	2,947	421	.....	.....	148,287	234,631
Coastwise-domestic—						
Fuel oil	69,806	9,972	135,198	19,314	2,136,388	2,014,756
Diesel and gas oil	30,137	4,305	.....	.....	539,292	197,308
Gasoline	146,712	20,959	102,591	14,656	2,061,015	1,383,621
Kerosene	21,603	3,086	.....	.....	257,363	47,311

Santa Maria

Four new wells were completed in the Santa Maria Valley field this week but none of them registered substantial production although the limited market may have had something to do with the maximum flow established. This field has a daily allotment of 8,400 bbls. for the month of May in contrast with 10,000 bbls. daily during April. Signal Oil Co. completed No. 1 Yelkin, in section 26-10-34, flowing 1,110 bbls. of relatively clean 16.3-gravity oil daily from 4,570 feet and will begin drilling operations on No. 12 Yelkin within another few days. No. 1 Yelkin was finished with 436 feet of 6⅝-inch liner including 403 feet of perforated after top of the Monterey had been encountered at 4,160 feet and the hole drilled to the completion depth.

California Lands, Inc., an operating subsidiary of Bank of America, with headquarters in San Francisco, completed No. 1 McDonnell, in section 28-10-34, flowing 1,845 bbls. of clean 16.4-gravity oil per day from 5,228 feet. Hanoli Oil Co. has finally got No. 1 Holser on steady production although the crew is not entirely satisfied with production and preparations are under way to put the well on the beam. No. 1 Holser may do better than its initial of 434 bbls. of 16.5-gravity oil per day from 4,790 feet. Union Oil Co. completed No. 1 Stinson, in section 28-10-34, pumping 224 bbls. of relatively clean 16.4-gravity oil daily from 5,128 feet after the hole had been finished with 444 feet of 6⅝-inch liner including 420 feet of perforated landed at 5,122 feet. A total of 110 wells have been completed in the Santa Maria Valley field and any 2 of about 20 wells are capable of producing more than the field's daily allotment for May and a few have shown potentials in excess of the field's daily quota.

Coastal Area

Tide Water Associated Oil Co., in the Ventura Avenue field, completed No. 31 Ventura Land & Water, flowing 1,290 bbls. of relatively clean 28.2-gravity oil and 1,775,000 feet of gas per day from 7,150 feet. The hole was finished with 375 feet of 5-inch liner including 340 feet of perforated landed at 7,145 feet. Tide Water Associated Oil Co.'s deep well in the Ventura Avenue field, No. 18 Hartman, is holding up in good shape as current production is 915 bbls. of clean 30.1-gravity oil and 750,000 feet of gas per day from 10,885 feet. In the Gato Ridge field of Santa Barbara County, Petrol Corp. completed No. 21-A Tognazzini, in section 9-8-32, pumping 1,650 bbls. of clean 14.3-gravity oil daily from 2,611 feet. This hole was finished with 808 feet of 8⅝-inch liner including 770 feet of perforated landed at 2,592 feet. Two cargoes of Gato Ridge crude have left California for the East Coast and plans call for additional shipments this year. In the Gaviota district of Santa Barbara County, Wilshire Oil Co. is rotating ahead in the Sespe at 3,440 feet in No. 1 Hollister but apparently has not yet showed enough to justify a test.

San Joaquin Basin

In the Mount Poso field, Ring Oil Co. completed No. 4 Shapiro, in section 32-26-28, pumping 291 bbls. of very clean 16.3-gravity oil daily from 1,722 feet after the hole had been finished with 33 feet of 7-inch liner including 18 feet of 140-mesh landed on bottom. This company is putting the finishing touches on No. 3 Loudon,* in section 32-26-28, at 1,710 feet. Shell Oil Co. will also list a new completion in the Mount Poso field next week as No. 6-A Mathews fee is being bailed following completion at 1,671 feet. This well is the substitute for No. 6 Mathews fee which drilled into the Mount Poso fault and was abandoned.

In the Midway-Sunset field of Kern County, the

(Continued on Page 319)

Oklahoma Operations

By DAL DALRYMPLE

Open New Boggy Sand Area; Decision Near at 3 Wildcats

Three important Oklahoma wildcats nearing decisions at the week-end were not looking very promising, but another Oklahoma outpost indicated the opening of a new producing area in Seminole County.

W. A. Delaney and others No. 1 Swan, SE SW SW section 18-6-6, wildcat west of the Konawa pool in Seminole County, uncovered new Boggy sand production. It had the sand at 2,671-92 feet, total depth 2,693 feet, and flowed 75 bbls. of oil in one head after being shut in for three days. It was shot with 30 quarts at 2,675-90 feet, started heading and flowed 281 bbls. of oil in 19 hours. At last report it was cleaning out. Several offsets were due to be started.

Texas Co. No. 1 Longan, NW cor. section 12-17-1e, wildcat south of the Ramsey pool in Payne County, was coring ahead below 4,954 feet and believed in or near top of second Wilcox sand. In cores at 4,922-32 feet, 4,932-43 feet and 4,943-54 feet only a slight showing of oil was found in Dolomite and shale. Earlier, a Schlumberger test indicated salt water in first Wilcox sand at 4,874 feet and some oil saturation in Hunton lime.

W. A. Delaney and others No. 1 Bugher, SE SE SW section 12-7-2w, wildcat near Noble in Cleveland County, had some saturation in a core at 7,665-74 feet in sandy Dolomite and a Schlumberger test was reported to have confirmed the show of oil. Operators had not decided whether to set pipe. This outpost may determine the trend of the Nemaha buried mountain range south from the Moore field in northern Cleveland County.

Carter Oil Co. and others No. 1 Lydick, C E half NW NE section 23-15-4w, wildcat in southwestern Logan County, was drilling below 6,673 feet in sandy Dolomite, with nothing showing.

A good Prue sand producer was completed in the Sac and Fox pool, Lincoln County, at Wilcox Oil & Gas Co. No. 11 Sac and Fox, SW SE NW section 15-14-6. It had Prue sand at 2,914-3,017 feet, and flowed at the rate of 10 bbls. of oil an hour, naturally, the operators reported.

Wildcat Operations

The proven gas area in Texas County, Oklahoma Panhandle, was enlarged with completion of two wildcats as producers.

Hardendorf & Kuhn No. 2 Wiggins, C NE section 2-2n-14ecm, about 3 miles west of Guymon, the Texas County seat, found gas pay at 2,665 feet, total depth 2,725 feet, and produced 37,500,000 feet of gas.

Hagy, Harrington & Marsh No. 1 Peck, C NE section 6-1n-13ecm, about 5 miles east of the Texhoma pool, plugged back from 2,893 feet, total depth, to 2,871 feet, acidized and produced 3,000,000 feet of gas daily, with 435 pounds rock pressure.

Norbla Oil Co. No. 1 Osage, SE cor. section 18-25-7, wildcat in Osage County, was dry and abandoned in Mississippi lime at 2,780-84 feet, total depth.

Helmerich & Payne No. 1 Mouersburger, C S half SW SE section 29-2n-8w, wildcat in Stephens County, had showings of oil in sand at 5,102-05 feet and 6,054-60 feet, but was dry and abandoned at 7,005 feet, total depth.

R. W. McDonald No. 1 Fite, SE SE NW section 34-7-21w, wildcat in northeastern Greer County, had a showing of dead oil at 1,303-20 feet but was dry and abandoned at 1,330 feet, total depth.

H. R. Hollenbach and others No. 1 Wilson, NW NW SE section 36-10-1e, Cleveland County, was an abandoned location.

Indian States Oil Co. and others No. 1 Johnson, NE SE NE section 2-6-5, Seminole County wildcat, was building rig. It was to be a 3,000-foot Boggy sand test.

Carter Oil Co. and others No. 1 Mote, C E half SW NW section 19-2n-9, wildcat northwest of Centrahoma in Coal County, was a location.

The Lucien District

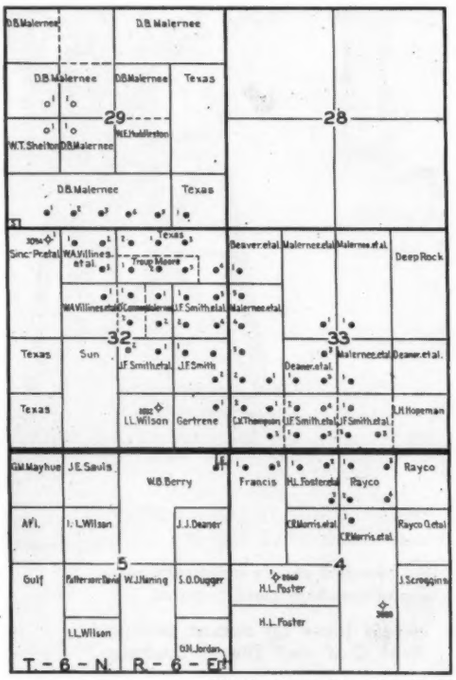
Sinclair Prairie Oil Co. No. 1 Guthrie, SW SW SE section 31-21-2w, North Lucien pool, Noble County, found Wilcox sand at 5,370 feet, total depth 5,413 feet, and flowed 275 bbls. of oil in 12 hours. After tubing was run, it made potential of 684 bbls. of 45-gravity oil, flowing by heads.

Mid-Continent Petroleum Corp. No. 3 Bulling, NW NE NE section 5-19-2w, Logan County extension of the Lucien field, an old well, was deepened from 5,107 feet to 6,309 feet and recompleted as a water disposal well.

Oklahoma City Field

Hall & Briscoe No. 1 Jordan, SW NE NE section 35-12-3w, Oklahoma City field, Oklahoma County, found Johnson sand at 6,325 feet and was completed at 6,369 feet, total depth. It flowed 887 bbls. of oil in 24 hours, cutting 11 per cent. Gas gauged 3,000,000 feet.

New work in Oklahoma County: Indian Territory Illuminating Oil Co. No. 9 Bodine, SE NE SE section 24-11-3w, spudded; Stahl Petroleum Co. No. 2 Slaughter, NW NW SW section 15-12-3w, rigging up rotary; same company's No. 2 Miller, SW NW SW section 15-12-3w, spudded; Clark & Co. No. 2 State, SE SE NE section 16-12-3w, rig.



Mid-Continent Map Co., Tulsa

The Dora pool in sections 29, 32 and 33-7-6 and 4 and 5-6-6, Seminole County, is one of Oklahoma's busiest areas

Okmulgee County

Vierson Drilling Co. No. 3 Beaver, SW NW NW section 6-14-13, Hamilton Switch district, Okmulgee County, had sand at 2,095-2,110 feet, total depth, and pumped 85 bbls. of oil in 24 hours.

Bryan Petroleum Co. No. 1 Thompson, SE NE NE section 8-15-11, Pollyanna area, pumped 28 bbls. of 36-gravity oil in 24 hours after plugging back from 3,005 feet, total depth, to 2,030 feet and shooting at 1,990-2,030 feet, in Bartlesville sand.

Aggas Drilling Co. No. 6 Anderson, SE NE NE section 3-15-14, was completed as a 3-bbl. pumper in Salt sand at 910-47 feet, total depth.

Conoquenessing Oil & Gas Co. No. 1 Palmer, SW NE SW section 29-13-12, Brinton area, was dry and abandoned at 3,356 feet, total depth.

First reports of new Okmulgee tests: Buell, Inc., No. 2 Johnson, SW NE SW section 4-13-11, machine; H. C. Detrick No. 1 Musgrove, SW NW SW section 19-13-11, location; Ed Smith No. 4 Keaton, CEL SE NE section 1-14-12, location; Vierson and others No. 2 Badger, CWL NW NW section 6-14-13, location; Jake Steighner No. 4-A Nash, C E half NE section 14-14-14, location; W. D. Coyle No. 8 Gardner, NW SE SW SW section 33-14-14, drilling below 300 feet.

Estimated Daily Production

Estimated daily production for Oklahoma for the week ending May 7, and for the preceding week was as follows:

	Barrels	
	May 7	Apr. 30
Allen	5,450	5,625
Billings	6,500	7,475
Burbank	7,425	7,325
South Burbank	10,975	10,600
Balance Osage	19,200	18,650
Blackwell district	4,700	4,850
Bristow-Slick	7,000	6,875
Chandler	2,225	2,200
Crescent	5,250	5,850
Cromwell	3,050	3,025
Cushing-Shamrock	10,825	10,725
Duncan district	3,975	3,725
Edmond	7,750	7,050
Fish	3,550	3,675
Fitts	53,375	50,825
Jesse	3,850	3,350
Graham	4,200	4,225
Gray	875	1,050
Healdton	8,675	8,650
Hewitt	3,600	3,450
Keokuk	3,875	5,375
Konawa	1,375	1,400
Lucien	10,750	11,675
Moore	4,650	5,250
Oklahoma City	119,975	101,750
Olympic	5,975	6,550
Ramsey	1,200	850
Sasakwa	1,700	1,750
Sholem-Alechem	2,925	2,950
Seminole district:		
Bowlegs	8,325	9,650
Carr City	3,450	3,850
Dora	5,025	5,375
Earlsboro	4,525	5,250
South Earlsboro	525	575
East Earlsboro	5,275	5,475
Little River	7,600	8,225
East Little River	850	875
Maud	725	750
Mission	1,500	1,700
Seminole	6,475	8,600
East Seminole	1,775	1,875
Searight	2,450	3,425
Total Seminole	48,500	55,625
St. Louis-Pearson	21,700	20,750
Tatums	3,725	3,700
Tonkawa-Garber-Thomas	4,225	4,250
Wewoka	2,425	2,475
Yale-Jennings	3,825	3,775
Other pools	77,500	76,550
Total Oklahoma	486,775	473,875

Tulsa County

S. W. Anthony No. 8 Wilcox, NE NW NW section 3-16-12, Independent pool, Tulsa County, had Wilcox sand at 2,273-83 feet, total depth, and swabbed 75 bbls. of oil in 24 hours.

Two new Tulsa County tests were reported. B. F. Cook No. 3 Barber, SE NE SE section 14-17-12, was drilling below 725 feet. McNalley and others No. 5 Casar, NE cor. section 36-18-12, was a machine.

Okfuskee County

United Petroleum Co. No. 1-A Rentie, SW cor. section 24-12-11, Sheldon area, Okfuskee County, was dry and abandoned at 2,870 feet, total depth.

(Continued on Page 314)

see HAPPY at the S

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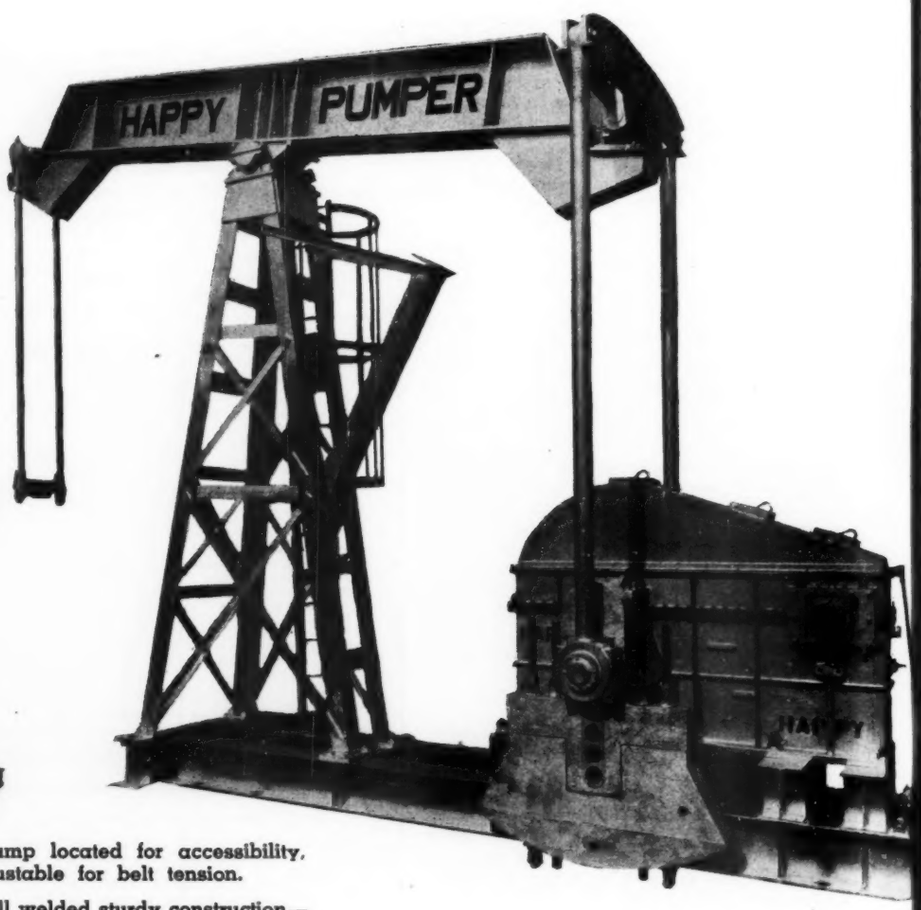

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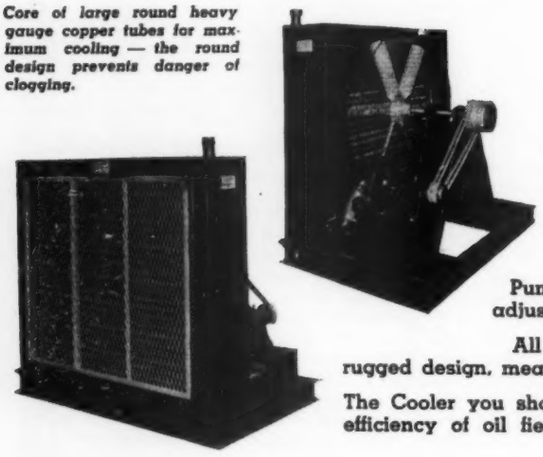

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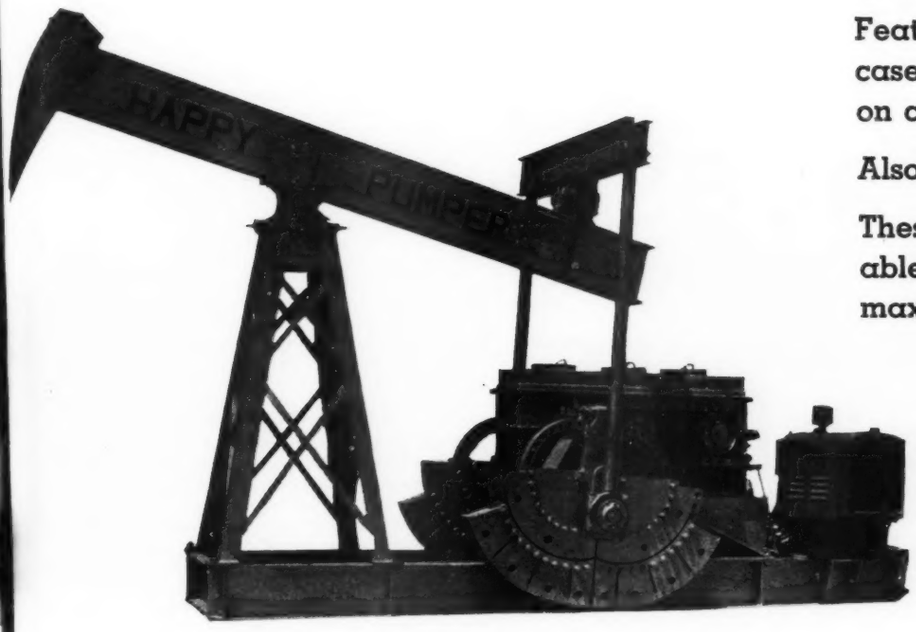

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RE TULSA, OKLAHOMA

O. B. Quinn No. 1 Martina-Queen, SE NW SE section 26-10-10, was drilling below 365 feet. Suppes & White No. 2 Alexander, CEL NW NE section 35-11-9, was drilling below 150 feet.

Creek County

A. D. Whitten No. 3 Taylor, SE NW SE section 8-18-12, Creek County, spudded but was abandoned.

S. W. Anthony No. 7 Muskogee, SE NE NW NE section 9-16-12, an old well, was preparing to deepen.

Seminole County

The following new work in Seminole County was reported: J. B. Terry and others No. 2 Scroggins, NE SW NE section 4-6-6, Dora pool, location; Troup and others No. 1 Harris, NE SE NW section 4-6-6, drilling below 1,980 feet; Winkler & McQueen No. 5 Bruner, SW NE NE section 4-6-6, spudded; Atlantic Refining Co. No. 4 Damron, SW NE NW section 22-6-6, Traugh pool, cellar and pits; Sinclair Prairie Oil Co. No. 2 Tennison, NE SE NW section 22-6-6, rig; Delaney No. 1 Rodden, NW NE SW section 13-6-5, Grayson area, cellar and pits; J. F. Smith and others No. 1 Sap, SW SE SW section 23-7-5, cellar and pits; Commercial Drilling Co. No. 1 Bird, NE NW SW section 14-9-6, Seminole field, location.

Wood Oil Co. No. 1 Harjo, SE SW NW section 12-5-7, an old well in the Allen district, was deepened from 4,298 feet to 4,308 feet, and pumped 123 bbls. of oil and 15 bbls. of water in 24 hours, completed.

Pontotoc County

Magnolia Petroleum Co. No. 1 Young, SE NE NW section 22-2n-7, an old well in the Fitts field, Pontotoc County, was plugged back from 3,910 feet to 3,150 feet, perforated casing at 1,322-47 feet, and pumped 13 bbls. of oil and 50 bbls. of water in 24 hours.

Westheimer & Neustadt No. 2-A Factor, NW SE SW section 25-5-7, an old well in the Allen district, was plugged back from 4,032 feet to 2,265 feet, and pumped 30 bbls. of oil and 3 bbls. of water from Gilcrease pay at 2,243-59 feet, recompleted.

Lake Oil Co. No. 4 Gray B, NW NE SW section 25-5-4, Beebe pool, had dug cellar and pits. United Corp. No. 3 Burk B, SW SW SE section 25-5-4, had dug cellar and pits. Hiddleson No. 1-A Jones, NE NW SW section 33-5-8, Allen area, was rigging up rotary.

Pottawatomie County

Indian Territory Illuminating Oil Co. No. 2 Shobe, SW SE SE section 35-8-4, an old well in the St. Louis field, Pottawatomie County, was plugged back from 4,254 feet to 3,721 feet, perforated casing without result and was dry and abandoned.

New work in Pottawatomie County: Ed Cope No. 1-A Walker, NE SE SW section 7-7-4, cellar and pits; Gulf Oil Corp. No. 1 Page, NE NW NW section 13-7-4, cellar and pits; Hall & Briscoe No. 1-A Coleman, SW NW NW section 33-7-5, location; J. E. Trigg No. 2 Canfield, NE NW SW section 33-7-5, location.

Muskogee-Wagoner Counties

Art Geneva No. 3 Lawson, SW SE SE section 15-15-15, Muskogee County, was a location. Abe Pepis and others No. 6 Russell, NW NE SE section 19-15-16, was drilling below 150 feet.

Knox-Shouse No. 2 Kenworthy, NE NW NE section 3-16-15, was location for a new test in Wagoner County.

Lincoln County

Summit Drilling Co. No. 1 Clark, SE SW NE section 35-15-2e, North Wellston area, Lincoln County, an old well bottomed at 5,125 feet, was plugged back to 5,028 feet, perforated casing at 5,456-59½ feet, water intruded and operators were cementing perforations.

Garfield County

O. A. Roberts No. 1 Haber, NE cor. section 1-20-3w, Garfield County side of the North Lucien pool, was digging cellar.

Magnolia Petroleum Co. No. 1 Clark, SE cor. section 28-21-6w, was a location in the new Waukomis pool.

Sinclair Prairie Oil Co. No. 30 Walker, CNL S half SE section 24-22-4w, Garber pool, was a location.

Osage County

New activity in Osage County was as follows: Pure Oil Co. No. 179 Osage, SE NW NE section 5-23-8, and same company's No. 180 Osage, NE NW NE section 5-23-8, were locations. F. A. Haver No. 4 Osage, C S half S half SW section 28-23-11, an old well, was rigging up to deepen from 1,013 feet. Lewis Production Co. No. 3 Osage, SE SW SW section 9-24-7, an old well, was rigging up to deepen from 2,665 feet. Same company's No. 2 Osage, SE SW SW section 27-24-7, was a location. Indian Territory Illuminating Oil Co. No. 455 Osage, NW SW SW section 29-26-11, had spudded.

Carter County

Shell Petroleum Corp. No. 19 Harton, SW SW NE section 6-4s-3w, Healdton field, Carter County, had Deese sand at 1,171-92 feet, total depth, was shot and pumped 155 bbls. of oil in 24 hours.

Kewanee Oil & Gas Co. No. 28 Keck, SE NE NE section 5-4s-3w, was bottomed at 1,150 feet, shot at 1,080-1,130 feet, and pumped 10 bbls. of oil in six hours from Deese formation.

Rockland Oil Co. No. 59 Sarasota, NE cor. section 23-4s-3w, had several oil sands in Deese formation, was bottomed at 1,372 feet, and pumped 35 bbls. of 33-gravity oil in 24 hours.

Carlock & Dexter No. 1 Broken Shoulder, SW NE SW SW section 4-4s-3w, an old Healdton well, was recompleted for 4½ bbls. of oil daily, failing to increase production by deepening from 1,002 feet to 1,074 feet.

New work in Carter County: Carl Carter No. 2 McClish, NE NE NW section 30-2s-3w, Milroy pool, estimated good for 3 bbls. of oil at 360 feet; Ideal Oil & Gas Co. No. 6 Scroggins, NE SE SE section 32-3s-3w, an old well, rigging up to deepen; same company's No. 14 Scroggins, SW NE SE SE section 32-3s-3w, location; Shell Petroleum Corp. No. 17 Harton, SW SW NE section 6-4s-3w, an old well, cleaning out after deepening from 1,152 feet to 1,163 feet and shooting.

Stephens County

George L. Pace and others No. 17 Allen, SW SE NE section 3-2s-8w, Empire pool, Stephens County, had Pontotoc sand at 2,208-14 feet, total depth, and pumped 290 bbls. of 32-gravity oil in 24 hours.

Gulf Oil Corp. No. 14-A Bowers, NE SE SE sec-

(Continued on Page 331)

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Texas and Louisiana Gulf

By
NEIL WILLIAMS

Distillate Well on the Conroe Trend in Beauregard Parish

HOUSTON, Tex., May 9.—Further development of the "Conroe Trend" in Coastal Louisiana was emphasized once again with the completion of Republic Production Co. No. 1 Lutcher Moore Lumber Co., which opened distillate production on the Bancroft Prospect in section 10-6s-13w, northwestern Beauregard Parish. While details of the completion were withheld for the time being by the company, it is reported that the hole was drilled to approximately 8,100 feet and that completion was made through perforated casing at approximately 7,570-80 feet. The well is flowing through a ¼-inch choke, making an unestimated amount of distillate and approximately 3,500,000 feet of gas daily.

Prospects of opening a deep sand in the Old Bayou Blue field, Iberville Parish, were considered bright following an attempted production test on Humble Oil & Refining Co. No. 6 Wilbert's Son Lumber Co., section 66-9s-11e. Casing was perforated at 6,934-47 feet, and after the hole was swabbed to 3,500 feet, the well started showing gas, oil and wash water. Failing to flow, it was shut in, and when swabbing was resumed the fluid was standing at 3,500 feet. The screen was found to have been clogged with commercial mud which had to be used several weeks ago when the well attempted to blow out. The screen and liner is being pulled and the well is to be retested this week.

Humble Oil & Refining Co. No. 1 Boyd Finch, section 2-10s-1e, which showed indications of opening a new field at the South Crowley Prospect, Acadia Parish, is being recompleted due to salt water intrusion which broke in after the well began to flow pipe line oil. The casing was perforated at 7,308-15 feet, and the well flowed at the rate of 21 bbls. of pipe line oil per hour for the first day and then started showing 15 per cent salt water, which increased to 75 per cent within a few hours. The screen and liner are being pulled preparatory to making a squeeze job and reperforating the casing for another production test.

Superior Oil Co. and others are rigging up second test in the Creole field, offshore 1 mile from Cameron Parish. The well is No. 2 State Gulf of Mexico, about 30 feet north of the discovery well, completed a few weeks ago at 5,110-80 feet. The same company's No. 1 John Sells, located on the shore of Cameron Parish and said to be located on the same structure, is drilling plug after cementing a protection string of 10¾-inch casing at 6,350 feet. This test is scheduled to be drilled to 10,000 feet.

A Deep Failure

In Lafayette Parish, Continental Oil Co. abandoned No. 1 Foreman in section 36-9s-3e, at 10,973 feet. No showings were logged. The Potamides was topped at 4,436 feet, Eponides at 9,190 feet, Clavuline at 9,430 feet, Heterostegina at 9,694 feet, Heterostegina lime at 10,005 feet and the Marginulina at 10,320 feet. The well is located on the Scott Prospect.

Showing of salt water in Union Sulphur Co. No. 2 Calcasieu National Bank, which opened the first oil production for the Woodlawn gas field, Jefferson Davis Parish last week, will discourage any large scale drilling program. The well was completed through perforated casing at 8,893-84 feet for an initial production of 586 bbls. of pipe line oil per day through a ¼-inch choke. During the past week, the well has been flowing from 115 to 199 bbls. of net oil and from 6 to 15 per cent salt water. The flow is through ¼-inch and ⅛-inch chokes.

Stanolind Oil & Gas Co. No. 3 Calcasieu National Bank, South Elton gas field, Jefferson Davis Parish, was completed as a dry gasser. The well is producing from perforated casing at 8,990-98 feet. The well was drilled to 13,210 feet, a deep hole record for the Gulf Coast.

The second well in the Baton Rouge field, adjoining the Louisiana State University campus, had drilled below the discovery horizon with only minor showings logged. It is William Helis No. 3 State Land University, which is preparing to drill ahead from 6,552 feet. The discovery well was completed from a screen setting at 6,472-77 feet.

The first production test in the second well drilled in the deep Horseshoe Bayou field, St. Mary Parish, was made through perforated casing at 10,900-09 feet and yielded 4 bbls. of salt water and 1 bbl. of oil. The perforations have been squeezed off and the casing is being reperforated after setting a cement retainer at 8,074 feet.

Important Wildcat Locations

One mile west of the Cleveland field, Liberty County, Texas, on the J. M. Blanding and others tract, James Eldridge Survey, J. G. Mayo and Chapman Minerals have a rig up for a deep test which will be drilled to the Wilcox formation. The location is of special interest in view of the showing logged in the Gulf Oil Corp. deep test, No. 21-C Kirby Lumber Co. The hole is bottomed in sandy shale showing gas at 9,149 feet and a drill stem test was being made. Sandy shale with a gas odor was cored from 9,140 feet to the total depth. The producing horizon at Cleveland is the Cockfield formation at approximately 5,800 feet, and the present test is the first deep hole to be drilled in the field.

South of the Spurger field, in the B.B.B.&C. Survey No. 13, Tyler County, Glenn H. McCarthy has a derrick up for No. 1 J. A. McShane located out of the northeast corner of the survey.

In the Deer Park area, along the Houston Ship Channel, southeast of Houston in Harris County, Jack Frazier and C. B. Bunte have derrick up for No. 1 Houston Deep Water Land Co. in the Thomas Earle Survey. Several wells have been drilled in this area and some encouraging showings were reported.

North of Houston at the Aldine area, the above operators made a drill stem test in No. 1 Gillespie at 7,042-68 feet and it showed 300 feet of mud and wash water with no showing of oil, or gas pressure. The hole is bottomed in the Upper Saline Bayou formation and it will be deepened a few hundred feet.

New Work in Fairbanks

In the Fairbanks field, Harris County, Amerada Petroleum Corp. and Stanolind Oil & Gas Co. have derrick up for No. 2 E. W. Mills, A. Lawson Survey; H. A. Adams has spudded No. 3 J. P. Dawson, W. K. Hamblin Survey and Smith & Ownby Drilling Co. has derrick up for No. 1 E. M. White, a north offset to Amerada Petroleum Co. and others No. 1 White, the most easterly well drilled. Showers & Moncrief are starting No. 1 G. W. Reid in the J. Waugh Survey. Union Producing Co. spudded No. 1 Goodykoontz, Wiley S. Powell Survey, about a mile northeast of production and the outcome of this test should give some idea as to the probable trend of production.

Humble Oil & Refining Co. No. 1 McFaddin, 1 mile offshore from Jefferson County in the Gulf of Mexico, was shut down for geophysical work after rock salt was topped at 2,603 feet and cored to a total depth of 2,655 feet. The salt was previously reported topped at approximately 1,450 feet. Should the geophysical work show the present location over the salt plug, the hole will no doubt be abandoned and work will be started on the other three locations in tract No. 7 staked 2,660 feet, 5,300 feet and 7,940 feet from the shore line.

The third oil well for the Cedar Point field in Galveston Bay was assured with the showing of Standard Oil Co. of Texas and Salt Dome Oil Corp. No. 1-119, a northwest offset to the discovery well. The hole is bottomed at 6,120 feet and casing was scheduled to be run after oil sand was logged. Sand streaks showing oil were logged at 5,926-67 feet, oil sand at 6,030-33 feet, shale at 6,035-38 feet, sand at 6,040-59 feet and shale at 6,059-65 feet. The salt water level which was thought to have been established by Humble Oil & Refining Co. No. 1 State, at 6,008 feet will no doubt be disregarded since the bottom of the hole of the present test is said to be bottomed in shale. This is no doubt due to unusual cross faulting condition.

Prospect of opening flank production on the north side of the Sugarland field, Fort Rend County, was not encouraging as Strake Petroleum Corp. continues to swab No. 1 Sugarland Industries with little results. The hole is bottomed in salt at 5,199 feet and the first test was made through perforated casing at 5,122-57 feet, which showed wash water with a trace of oil. The tubing was pulled and the casing was perforated at 5,039-51 feet and swabbing continues with the well showing wash water with a trace of oil. Casing was cemented for a production test last week after a 3-minute drill stem test at 5,152-57 feet showed five thribbles of oil and drilling mud.

COMPLETIONS ON TEXAS COAST

Brazoria County

Hastings field: Humble Oil & Refining Co. No. 12-B Cecil Brown, sand 5,871-6,070 feet, 649 bbls., ¼-inch choke. Stanolind Oil & Gas Co. No. 28-A W. R. Curkett, perforated casing 6,032-72 feet, 669 bbls., ¼-inch choke. Stanolind Oil & Gas Co. No. 6 C. H. Moore, perforated casing 6,038-78 feet, 629 bbls., ¼-inch choke. West Columbia field: Texas Co. No. 22 Abrams, sand 5,257-5,429 feet, 584 bbls., ¼-inch choke.

Chambers County

Anahuac field: Humble Oil & Refining Co. No. 24 Tyrell, sand 7,100-19 feet, 422 bbls., ¼-inch choke.

Fort Bend County

Thompson field: Humble Oil & Refining Co. No. 34-X Lockwood-Sharp., perforated casing 3,054-63 feet, 108 bbls., ⅛-inch choke.

Galveston County

Dickinson field: Atlantic Refining Co. No. 3 H. O. Jones, perforated casing 8,059-63 feet, 152 bbls., ¼-inch choke. Humble Oil & Refining Co. No. 2 Malley, perforated casing 8,653-58 feet, 241 bbls., ¼-inch choke. Humble Oil & Refining Co. No. 23-A M. Stewart, perforated casing 8,539-51 feet, 701 bbls., ¼-inch choke.

Harris County

Eureka field: Allamo Drilling Co. No. 2 Laura Lackner, sand 7,663-94 feet, 137 bbls., ¼-inch choke. Jack Frazier and others No. 1 Hogg Brothers perforated casing 7,714-32 feet, 616 bbls., ¼-inch choke. Fairbanks field: H. C. Adams No. 2 J. P. Dawson, sand 6,814-50 feet, 36 bbls. distillate, ⅛-inch choke. Amerada Petroleum Co. No. 1 K. S. Silverberg, sand 6,829-54 feet, 673 bbls., ¼-inch choke. Friends-Wood field: Humble Oil & Refining Co. No. 4 Keisling and Dixon, perforated casing 6,018-38 feet, 719 bbls., ¼-inch choke. Humble Oil & Refining Co. No. 5 J. J. Settegas, sand 5,800-6,041 feet, 596 bbls., ¼-inch choke. Humble Oil & Refining Co. No. 1-B O. P. Woodburn,

6,200 feet, abandoned. Tomball field: Humble Oil & Refining Co. No. 3 Jovine, perforated casing 5,512-31 feet, gas well.

Liberty County

Hardin field: Gulf Oil Corp. No. 1 A. B. Tullos, perforated casing 7,609-19 feet, 652 bbls., ¼-inch choke. Halliburton Production Co. No. 2 B. F. Hanchey, sand 7,599-7,637 feet, 541 bbls., ¼-inch choke. Shell Petroleum Corp. No. 2 Hanchey, sand 7,635-55 feet, 575 bbls., ¼-inch choke. L. W. Wickes No. 3 M. F. Tullos, sand 7,662-72 feet, 629 bbls., ¼-inch choke.

Wharton County

Five Corners field: Texas Co. No. 16-B Pierce, perforated casing 5,520-37 feet, gas well.

North Louisiana, Arkansas

Extension Well at Jefferson Yielding Gas and Distillate

By GEORGE WEBER

SHREVEPORT, May 9.—Good results were forthcoming in the past week from the active play in South Arkansas. The importance of that area was enhanced by a showing of saturation in the Standard Oil Co. wildcat near Village in Columbia County, which cored the top of the Big lime. Further developments included the coring of a good section in a west edge test of the Buckner field, also in Columbia County, and the deepening of a test in the Schuler field, which may be carried through the Big lime.

The Jefferson-Lodi section of Rodessa, in Marion County, Texas, came in for its share of attention, with completion of the southwest outpost well, Arkansas-Louisiana Gas Co. No. 1 Pitts, for a good gas well, showing distillate, and indicating Hill production down structure. In the field proper four wells were brought in.

Pipe line proration continues to affect production. Following curtailed purchases in the Lisbon, La., and Schuler, Ark., pools, both of which were given reduced allowables, Gulf Oil Corp. announced that its pipe line takings would be cut approximately 25 per cent in all of the tri-state Rodessa field. This will decrease Gulf purchases from approximately 20,000 bbls. to about 14,500 bbls. daily. Hardest hit by the curtailment is the Jefferson-Lodi area for which the Gulf pipe line is currently the only outlet.

Gulf's reduction in Rodessa takings, effective May 1, was made necessary so far as the Jefferson-Lodi area is concerned, by a lack of sufficient capacity in the 4-inch line. The cut is announced as temporary until a decision is made whether the line shall be looped or enlarged by additional pump stations. The Jefferson-Lodi section now has over 80 producers, the daily production of which will be dropped from an average of about 130 bbls. to about 100 bbls. each. It is not yet known whether the reduced outlet will bring a cut in the field allowable.

Decision of the Lion Oil Refining Co. of El Dorado, Ark., to withdraw purchases of Schuler crude and to only run oil produced in Lion wells was followed by a drastic cut in the field allowable of Schuler. The total field allowable was set at 6,924 bbls. daily, an average of about 200 bbls. per well per day, as against 550 bbls. previously, with a top of 800 bbls. per well daily, which was the allowed production as recently as February. Due to the withdrawal of Lion purchases, the Root Petroleum Co., only other pipe line operator serving Schuler, was active during the past week in laying connections to wells which had been left with no outlets. The Root takings will be limited to about 150 bbls. per day from each well connected in the gathering system.

Village Wildcat

The outstanding development of the week was the coring of the Smackover, or Big lime, in Standard Oil Co. of Louisiana No. 1 Phillips. The wildcat, located in section 15-17-19 near Village, has had showings of oil saturation in upper sands, and indications were that it would find saturation in the top of the lime.

The test cored the top of the Big lime at 7,465 feet and recovered a core at 7,365-68 feet consisting of oolitic lime with show of oil. At 7,368-71 feet was dolomite with oolitic lime and at 7,371-80 feet was dolomitic lime. Oolitic lime, with a showing of oil, was again cored at 7,380-81 feet. On the next core, taken at 7,381-95 feet, 5½ feet of core was recovered, the first 5 feet and 2 inches consisting of light grey to light brown hard, dense oolitic lime, and the remaining 4 inches fairly soft, porous oolitic lime, showing a stain of oil and a good gas odor.

A drill-stem test was attempted late in the week at 7,351-95 feet. After 3 minutes the test had built up the pressure to 45 pounds and after 2 additional minutes the working pressure was 75 pounds. Eleven stands and one joint of drilling mud was recovered, and a blow of gas was obtained. Following the failure of the seat in the first test, operators were planning to retest shortly.

To the northwest in the Buckner field of Columbia County, a west edge test showed indications of making a good producer. Standard Oil Co. of Louisiana No. 1 Waters, a west offset to the company's No. 1 McKean, discovery well, topped hard lime at 7,195 feet and soft saturated lime at 7,197 feet. The test was carried to 7,242 feet in the soft lime, and casing was being run over the week end. The well is in an important location due to the failure of two southwest outposts drilled earlier in the history of the new field.

The Schuler field may have an interesting deep test, if Phillips Petroleum Co. decides to drill ahead on its No. 3 Justiss. The well this week cored 60 feet of saturation in the Reynolds lime, an upper oolitic member of the Smackover or Big lime. The lime was topped at 7,609 feet. At latest reports, it was drilling in 7,768 feet in dense oolitic lime, and there is a possibility that it will be carried through the lime to explore deeper production possibilities.

A development of importance in the newly discovered Magnolia field, in Columbia County, Arkansas, was the sale of the Kerr-Lynn Oil Co. properties to the Atlantic Refining Co. The discovery well, only operation to date in the new South Arkansas lime-trend field, and surrounding acreage were included in the transaction. This may indicate that development of the field will take place shortly. The Atlantic Refining Co. also holds extensive acreage southeast of the Schuler field, and two locations were staked in that field during the week. Drilling of these tests has not yet begun, and due to the greatly curtailed allowable which Schuler has undergone in the past week, drilling in general throughout the field may be expected to show some decline.

Jefferson Extension

The Arkansas-Louisiana Gas Co. No. 1 Pitts, 2 miles southwest of production in the Jefferson pool of Marion County, East Texas, was completed as a gasser in the Hill sand. The well gauged 6,500,000 feet daily through a ¼-inch choke, with tubing pressure of 2,150 pounds and casing pressure 2,325 pounds. An estimated 2 bbls. per hour of distillate is being produced with the gas. Seven-inch casing set at 6,250 feet was perforated at 5,930-43 feet with 50 shots.

The gas discovery shows indications of possible oil production in the Hill zone down structure from the present producer. The structure southwest of Jefferson is apparently complicated by a number of faults, and further drilling will need to be undertaken before the extent of this faulting is known. No. 1 Hill found saturation in the Gloyd horizon, several feet below the established water table in the Gloyd productive zones in Jefferson-Lodi proper It is, furthermore, the only Hill sand producer in the southwest section of the Rodessa trend, the nearest other wells in that horizon, being near the Texas-Louisiana state line in Cass County, Texas.

Lisbon Outpost Failure

A southeast outpost to the Lisbon field, Lincoln Parish, La., defined the field at that point, as Lyons & Neely No. 1 Brazzill, section 17-20-4, failed to obtain saturated lime, and was abandoned at a total depth of 5,486 feet. In the Lisbon field, two oil wells were completed, making gauges of 1,600 and 350 bbls., respectively, per day.

The considerable number of deep wildcat tests in North Louisiana is attracting close attention of all operators interested in development in the district. The deepest one, Union Producing Co. No. 2 Brownfield, in the Sugar Creek field of Claiborne Parish, is reported drilling plugs in the 7-inch casing set last week at 10,561 feet.

In the Shongaloo field of Webster Parish, Magnolia Petroleum Co. No. 1 Sexton Unit is drilling below 9,886 feet and may top the Big lime at any time. Shows of gas and distillate in shallower horizons point to a possibility of the test finding oil in the top of the Smackover. Its importance lies in its location, south of the current active lime trend from Buckner to Schuler in South Arkansas.

Estimated Daily Production

Estimated daily gross production in the week ending May 7:

NORTH LOUISIANA

	Barrels
Bellevue	650
Caddo light	3,885
Caddo light	2,400
Converse	550
Cotton Valley heavy	110
Cotton Valley light	*10,125
De Soto and Red River	1,445
Elm Grove	355
Haynesville	2,930
Holly	95
Homer	2,650
Lisbon	8,550
Pleasant Hill	115
Rodessa	41,225
Sarepta-Carterville	215
Sligo	270
Sugar Creek	325
Urania	2,785
Zwolle	1,015
Total	79,695

SOUTH ARKANSAS

Buckner	410
Champagnolle	1,215
El Dorado	1,880
Lisbon	270
Miller County	380
Nevada	640
Rodessa	7,520
Schuler	14,520
Smackover light	2,050
Smackover heavy	16,330
Stephens	560
Troy	1,245
Urbana	1,250
Village	285
Total	48,555

Texas side of Rodessa field 39,255 bbls. daily.

*3,340 bbls. is distillate.

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Among Gulf Coast Drilling Contractors

Trinity Drillers, Inc., of San Antonio, is drilling one of the most important wildcats ever started in the Lower Gulf Coast district. The test is the first to be drilled in the inland bays in this particular area and during the past week the bit had passed the 6,400-foot mark. The well is about a half mile off Port Aransas, in Red Fish Bay, and is being drilled for the Coast Line Oil Corp. The company is drilling seven other operations in the Southwest Texas district. Three of its rotaries are running in the West Saxet field for the Phillips Petroleum Co., one in the Driscoll field, Duval County, for the Continental Oil Co.; one in the Alta Mesa field for Standard Oil Co. of Texas; one in the Mirando Valley field, Zapata County, for Buffalo Oil Co. and one in the McFaddin field, Victoria County, for the Transwestern Oil Co.

Jack Frazier is moving a large rotary to the Deer Park area, southeast of Houston for No. 1 Houston Deep Water Land Co., in the Thomas Earle Survey. The well is being drilled for C. B. Bunte and for himself. A drill-stem test was made on his No. 1 Gillespie in the Aldine area, Harris County, and the hole is being deepened to the contract depth of 7,500 feet. One other Frazier outfit is operating in the Eureka field near the Houston city limits.

T. A. Carlton has spudded a semi-wildcat for himself about a mile north of the Magnet field on the Lewis-Bradshaw lease in the S. Castleman Survey.

Glenn H. McCarthy is moving in one of his rotaries to a wildcat location about 5 miles south of the Spurger field, Tyler County. The well is located on the McShane lease in the B.B.B.&C. Survey. It will be drilled to the Wilcox formation. One rotary is drilling for himself in the Benavides field, Duval County, while in the Katy area No. 1 Foreman, being drilled for Stanolind Oil & Gas Co. and scheduled to go to a contract depth of 10,000 feet if necessary, is drilling past the 7,100-foot horizon.

Cron & Gracey were preparing to make a production test on an interesting wildcat located along the Balcones Fault line district in Burleson County. The well is being drilled for the Red Bank Oil Co. on the H. H. Coffield lease, about 12 miles south of Rockdale. Soft lime, showing saturation, was logged at 6,170-71 feet and a drill-stem test was scheduled to be made.

Loffland Brothers are preparing to complete the third producer in the Cedar Point field in Galveston Bay. The well is the second producer for Standard Oil Co. of Texas and others and is located in the state tract No. 119. It is bottomed at 6,120 feet and casing is being run for completion.

Wynne Crosby Drilling Co. has abandoned Strake Petroleum Corp. No. 1 Sugarland Industries, which for a while showed promise of opening flank production in the old Sugarland field in Fort Bend County. Production tests through perforated casing at 5,122-57 and 5,039-51 feet, showed only a small trace of oil and wash water. A new location is expected to be made soon.

Drilling activity in the Fairbanks field continues to gain each week and by the next week the number of operations is expected to surpass those in the Hastings field which has been the Texas Gulf Coast most active area for the past two years. The division of ownerships at Fairbanks together with the expiration of numerous leases have been responsible for the present drilling campaign. There are 11 active operations and three more tests are rigging up. Although one or two outpost tests have shown salt water, the limits of the field are undefined and the present activity is expected to be extended over a period of several months. With few exceptions, practically all of the drilling is being done by Gulf Coast contractors.

A recent survey of drilling operations along the Texas Gulf Coast and Southwest Texas district at the close of April, shows a total of 411 operations, which is a decrease of only 28 from the preceding month. A total of 259 operations were located in the Southwest Texas district, while along the Gulf Coast area there were 152. Of the total number in the Southwest area, 71 were wildcats, while in the upper district there were 23. This is an increase of eight wildcats in Southwest Texas and an increase of four in the Gulf Coast territory.

Drilling activity along the Gulf Coast has been kept fairly steady due to increased operations in such fields as Hardin, Dickinson, Hastings and the newly opened Fairbanks field. In the southwest, such fields as Benavides, West Saxet and Saxet have been responsible for a high rate of completions, and with the present drilling campaign in the Alice field, Jim Wells County, no decline in activity for southern Texas is anticipated for several months.

Superior Drilling Co. has spudded Pierce Estate No. 2 fee, in the McCroskey area, Matagorda County. It is located 500 feet northeast of the discovery well in the I.&G.N. Survey No. 7.

H. J. DeArman opened a new sand in the Maetze area, Goliad County, with the completion of Windward Oil Co. and others No. 1 Drier. Production was obtained through perforated casing at 4,806-09 feet, and the well is flowing 2 bbls. of distillate per day through a 12/64-inch choke.

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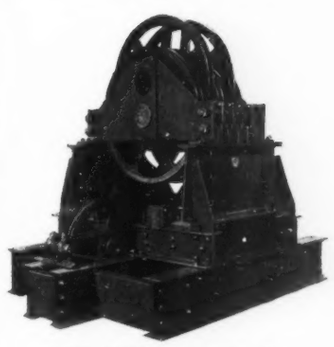

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West, Central and Panhandle Texas

By MITCHELL TUCKER

Outposts in Northern Sector of Basin Get Good Showings

FORT WORTH, Tex., May 9.—A wildcat in central Gaines County, in the northwest-southeast trend between the Seminole and Wasson fields, topped the Yates sand about level with Seminole wells and logged high gas volumes and pressures similar to that field about 4 miles to the southeast. This test, J. L. Frick and Osage Drilling Co. No. 1 Atlantic Refining Co.-T. S. Riley, is in section 249, Block G, W.T.R.R. Survey.

As an additional 1½-mile southwest extension to the Denver portion of the Wasson field, Helmerich & Payne-Continental Oil Co. No. 1 Ohio Oil Co.-Sadie O'Dowd, section 896, Block D, Yoakum County, flowed a small amount of oil and about 7,000,000 feet of gas on initial tests before tools were lost at 4,947 feet, total depth. Structurally this well is checking higher than any other in the vicinity.

Another wildcat in southern Gaines County, Finley & Cherry-Sawyer Drilling Co. No. 1 P. W. Dalmont, seeking to extend the Kirk one-well field about 4 miles to the northwest, continued in the testing stage. Although more than 200 feet of saturated lime was drilled to the total depth of 4,783 feet, the percentage of porosity appeared to be very low. The section at 4,708-77 feet was shot with 280 quarts. After cleaning out, 2,000 feet of oil was found in the hole, which was quickly exhausted by swabbing, and salt water appeared. Operators are undecided as to its source, and will continue swabbing for a thorough test. Should the hole prove nonproductive at this point, it will be deepened to the contract depth of 5,100 feet.

The vast proven area in the Wasson field received a further increase last week. Shell Petroleum Corp. No. 1 Dora Roberts, section 793, Block D, Yoakum County, about 4 miles west of the Denver area at Wasson and 2 miles west of the Texas Co. No. 1 Walker, small producer, began flowing after a 3,000-gallon acid charge, and tentatively gauged 155 bbls. in five hours.

The Texas Co. No. 1 Mallett Land & Cattle Co., 5 miles southeast of the Duggan field in Cochran County, the most northern production in the basin, is testing only salt water at a depth of 5,083 feet. Operators are plugging off bottom water and will test the oil pay logged at 5,039-52 feet.

In north central Andrews County, H. C. Wheeler No. 1 F. E. Gardner, 3 miles west of the Means field, has acidized itself into water after swabbing 1 bbl. of oil hourly following the first acidization with 1,000 gallons. After a subsequent 4,000-gallon treatment, an unestimated amount of water came into the hole. It is thought that possibly the acid channeled around the plug driven to 4,647 feet to shut off bottom-hole water, and a new plug will be installed.

The Texas Railroad Commission has issued a temporary spacing order for the Slaughter field of Hockley County on the basis of one well to 30 acres.

A possible outlet for the crude production at Slaughter and Duggan fields in the extreme northern portion of the basin was seen last week, as the Onyx Refining Co. of Abilene announced intentions to construct a small skimming plant about midway between these isolated fields.

Southern Basin

The new field on University of Texas lands in extreme northwestern Crockett County seems assured of its second producer, as Choate & Hogan No. 1-I University, has logged the pay, run casing, and is preparing to test. Three other wells are drilling in the field at this time.

Magnolia Petroleum Co. and Tex-Mex Oil Co. No. 1-A McKee, testing the Ordovician in the Imperial area of northern Pecos County, is coring below 5,925 feet in green shale and sand of Simpson age. A total of 1,217 feet of Simpson has been cored since topping this formation in February, and making several impressive heads of oil from sand 5,271-80 feet.

In northeastern Edwards County, south of the Edwards Plateau region, Dan Auld and others have abandoned their No. 1 Henderson in section 46, Block E½, H.E.&W.T. Survey, at 4,224 feet. Only salt water was found in drilling the Ordovician section, topped at 4,120 feet.

WEST CENTRAL TEXAS

Southern Haskell County's wildcat pool discovery, Forest Development Corp. and J. W. McMillen No. 1 A. E. Pardue, remained the center of attention for West Central Texas as the week ended.

With assurance of natural commercial production after a second and third round of gun perforations through cemented casing, Forest Development Corp. let contract for the drilling of an offset 880 feet north.

Pure Oil Co. entered the major company play, buying 160 acres a mile northeast of the well at $65 per acre, $30 cash and $35 oil, in section 2, Taylor Survey. Amerada and Shell had already bought spreads.

After failure of cement plugs to seal off bottom-hole water developed in perforating from 2,810-44 feet, the well was shot with 44 additional perforations from 2,795 to 2,815 feet and responded by filling 375 feet in 15 minutes, later spraying oil through casing Baker cement retainer and a squeeze job was to be used in an attempt to seal the hole from 2,815 feet. If the well holds to a natural gauge of 250 bbls. or above, it will likely not be acidized. Pay is the Adams Branch lime. Location is about 5 miles northeast of Stamford, and about 10 miles south of Haskell.

Cementing of pipe on the Mack Hayes and Montour Production Co. No. 1 Chittenden Estate, northwest of Anson in Jones County, was scheduled following gauging of this pool discovery at 144 bbls. in eight hours. The well was pumped during the week and held to approximately that average production. The oil is from Swastika sandy lime at 3,004-22 feet. Pipe, set to 2,993 feet, is to be lowered to about 3,200 feet for cementing. This discovery is 330 feet from the south and west lines of Amerada Subdivision 18, L. Kratz Survey No. 335.

Extensions to both the Avoca and Ivy pools, Palo Pinto producing areas, were indicated. Humble Oil & Refining Co. No. 2 Spencer, a quarter mile west of production in the Jones County Avoca area, cored saturation at 3,276-91 feet and cemented 5-inch pipe. It is 998 feet from the north and 1,006 feet from the east lines of section 195, B.B.B.&C. Survey.

Iron Mountain Oil Co. spread the Shackelford County Ivy pool a quarter mile north in the deep pay when its No. 2 D. A. Ivy filled with oil while drilling from 3,203 to 3,213 feet, total depth, and cemented pipe. Location is in the southwest quarter of section 159, B.B.B.&C. Survey.

In western Fisher County, Forest Development and S. and D. Daube of Ardmore, Okla., were rigging up for a scheduled 4,500-foot rotary wildcat 3½ miles southwest of Rotan. It is located 660 feet from the northeast corner of section 51-3, H.&T.C. Survey.

General Crude No. 1 J. D. Smith, southern Stonewall wildcat, ran 8-inch casing and tested a slight showing of oil in Fisher County lime at 3,970 feet, drilled ahead into water and was fishing for a bit at 3,994 feet. It is in section 371-2, H.&T.C. Survey.

Lewis Production Co. No. 1 L. Hensiee was staked as a new Taylor County wildcat between Tye and Merkel, scheduled to test the Palo Pinto lime on a block assembled by Dale H. Dorn and H. G. Daniels of Abilene.

PANHANDLE DISTRICT

The spring weather has stimulated activity in the Panhandle district, as 21 new locations in the proven area were announced last week. During this same period, 13 oil well and three gas well completions were made.

The Indian Territory Illuminating Oil Co. No. 1 Davis, new sweet gas field opener in southern Sherman County, about 18 miles north of the Panhandle gas field, is now cleaning out at its total depth of 3,840 feet in preparation to plug back. The well will be completed as a sweet gas producer from 2,705-3,116 feet, where an estimated 30,000,000-foot gauge was taken while drilling. It is reported that the I.T.I.O. Co. is negotiating a farm-out deal on part of its 16,000-acre block for several deep tests of this region.

WEST TEXAS COMPLETIONS

(24-hour gauges)

Andrews County

W. J. Donnelly No. 1 University, dry and abandoned at total depth of 4,703 feet.

Brewster County

Floyd C. Dodson No. 1 Texas-American Syndicate, dry and abandoned at 7,785 feet.

Crane County

Gulf Oil Corp. No. 171 McElroy, 2,671-2,871 feet, 3,490 bbls.; No. 173 McElroy, 2,785-3,021 feet, 595 bbls. Texas Co. No. 41 King, 2,360-2,400 feet, 230 bbls.

Culberson County

Collins & Brewer No. 2 C. M. Caldwell, dry and abandoned at total depth of 552 feet.

Ector County

Atlantic Refining Co. No. 2-B University, 3,400-3,642 feet, 823 bbls. Barnsdall No. 10 Cowden, 4,065-4,185 feet, 2,163 bbls.; No. 12 Cowden, 4,055-4,196 feet, 2,046 bbls. Broderick & Calvert No. 6 Parker, 3,994-4,178 feet, 2,994 bbls. Continental No. 4 T. & P. Land Tr., 4,037-4,190 feet, 1,847 bbls.; No. 6 T. & P. Land Tr., 4,020-4,180 feet, 2,311 bbls. M. J. Delaney No. 2 Smith, 4,165-4,320 feet, 540 bbls. W. J. Donnelly No. 1-B Connell, 3,245-3,610 feet, 278 bbls. Gulf Oil Corp. No. 90 Goldsmith, 4,125-4,205 feet, 2,548 bbls. Humble Oil & Refining Co. No. 6-B Cowden, 4,179-4,217 feet, 755 bbls.; No. 11-C Scharbauer, 4,155-90 feet, 176 bbls. Magnolia Petroleum Co. No. 4 Slator, 4,164-4,287 feet, 497 bbls. Phillips-Pure No. 21 C. Cowden, 4,103-80 feet, 6,291 bbls. Stanolind Oil & Gas Co. No. 10-B Cowden, 3,988-4,160 feet, 1,994 bbls. L. H. Wentz No. 2 Moss, 3,975-4,185 feet, 1,878 bbls.

Edwards County

Auld and Lyles No. 1 Henderson, total depth 4,224 feet, dry and abandoned.

Fisher County

General Crude No. 1 R. M. Young, dry and abandoned at total depth of 2,899 feet.

Hockley County

Honolulu Oil No. 2-77 Slaughter, 4,955-5,015 feet, 800 bbls.

Howard County

Magnolia Petroleum Co. No. 4 O'Daniel, 2,640-2,840 feet, 367 bbls. Moore Brothers No. 1-A O'Daniel, 2,627-2,820 feet, 975 bbls.; No. 3-A Snyder, 2,670-2,804 feet, 148 bbls.

Pecos County

Wilcox Oil & Gas Co. No. 1 Cerf, dry and abandoned at 5,253 feet.

Upton County

Bason Oil No. 4-A Baker, 2,305-2,337 feet, 1,021 bbls. British-American No. 11 Robins, 2,246-72 feet, 349 bbls. Humble Oil & Refining Co. No. 22-A Ricker, 2,047-2,169 feet, 57 bbls.; No. 17-B Ricker, 2,250-97 feet, 273 bbls.

Standard of Texas No. 1-10 University, dry and abandoned at 1,711 feet.

Val Verde County

J. F. Carter No. 1 Seller, abandoned location.

Ward County

Gulf Oil Corp. No. 88 Estes, 2,520-2,940 feet, 574 bbls.; No. 91 Estes, 2,500-2,665 feet, 2,121 bbls. A. E. Lynch No. 1-A Johnson, 1,935-2,052 feet, 202 bbls.

Winkler County

Bert Fields No. 2-C Pure-Cowden, 2,820-2,990 feet, 1,395 bbls. Gulf Oil Corp. No. 25 Keystone, 3,384-3,515 feet, 380 bbls. Magnolia Petroleum Co. No. 10 Slator-Walton, 2,995-3,290 feet, 586 bbls.

Yoakum County

Crump & Black No. 1 Bennett, 5,090-5,270 feet, 1,040 bbls. Honolulu Oil No. 4-677 Bennett, 5,075-5,260 feet, 1,478 bbls.; No. 3-678 Bennett, 5,155-5,270 feet, 977 bbls. Mid-Continent No. 4 Bennett, 5,060-5,240 feet, 1,612 bbls. Shell Petroleum Corp. No. 2 Bennett, 5,100-5,260 feet, 236 bbls.; No. 1 F. W. Hensley, 4,900-5,125 feet, 80 bbls. Texas Pacific Coal & Oil Co. No. 7 Bennett, 5,062-5,240 feet, 1,692 bbls.

WEST CENTRAL TEXAS COMPLETIONS

Jones County

B. H. Roth & Co. No. 1 O. A. Kinney and others, abandoned dry at 4,005 feet, total depth. Humble Oil & Refining Co. No. 1 R. B. Spencer & Co. flowed 532 bbls. through seven-eighths inch choke in five hours after 1,000-gallon acid treatment at 3,198 to 3,210 feet, total depth. Jay Simmons No. 1 W. T. Young, abandoned dry at 2,020 feet, total depth. Danciger Oil & Refineries No. 2 Hugh E. Roberts, flowed 281 bbls. in 24 hours after 40-quart shot from 1,922-43 feet, total depth. Iron Mountain Oil Co. No. 3 Carl Olander, flowed 853 bbls. in 5½ hours naturally from lime at 3,194 to 3,222 feet, total depth.

Shackelford County

Charter Oil & Gas Co. No. 12 N. M. Mims, 40 bbls. daily from 1,598 to 1,616 feet, total depth. Poly Oil Corp. No. 14 Spears and others, 24 bbls. daily from 706-32 feet, total depth.

J. F. Baker No. 3-A Merrick Davis, abandoned dry at 1,712 feet, total depth.

Callahan County

Cady & Edwards No. 7 A. Hickman, abandoned dry at 370 feet, total depth.

TEXAS PANHANDLE COMPLETIONS

(24-hour gauges)

Gray County

Sinclair-Prairie No. 6 Carey, 3,220-3,301 feet, 344 bbls. Texas Co. No. 14 M. B. Davis, 2,760-62 feet, 1,305 bbls.; No. 6 Brown, 3,160-3,260 feet, 580 bbls. Cities

(Continued on Page 331)

California Fields

(Continued from Page 310)

Texas Co. completed No. 31 Midway, in section 32-32-24, pumping 286 bbls. of 22.8-gravity oil daily from 3,295 feet. The hole was finished with 209 feet of 5-inch liner including 102 feet of perforated landed at 3,267 feet and was gravel packed. In the Kern River field, Kern Oil Co. completed No. 25-1-C, in section 25-28-27, pumping 120 bbls. of 15.3-gravity oil, cutting 5 per cent daily, from 2,007 feet.

The Rio Bravo field is rapidly taking on the appearance of a normal oil field due to aggressive development of Superior Oil Co. Superior has just staked location for No. 1 Helbling, in section 1-29-25, and rig material will be placed on ground within the next few days. This company has already completed Nos. 1 and 2 on the Wagner lease in section 35-28-25, No. 1 Ruhl, in section 1-29-25, and No. 1 Geissinger, in section 35-28-25, and is at present drilling ahead in No. 1 Anderson at 8,800 feet, No. 2 Geissinger at 500 feet, No. 3 Wagner at 10,250 feet, and No. 4 Wagner at 2,224 feet. Union Oil Co., discoverer of the Rio Bravo field, has suspended drilling operations on No. 2-34 Kern County Land with bottom at 11,204 feet due to the inability to recover a "fish" resulting from collapsed casing which pinched the string of tubing and prevented recovery. General Petroleum Corp. is held up with a bad fishing job in No. 1 Wagoner at 10,192 feet and it may be some time before the hole will be in shape to go ahead.

Los Angeles Basin

Two small wells were completed in the Torrance field and three others are making preparations for tests. Woolner Oil Co., one of the pioneers at Torrance, recompleted No. 1 Redondo, pumping 115 bbls. of 25.9-gravity oil per day from 5,017 feet, but some reconditioning work may be necessary as the well is making considerable sand. Andrews & Mitchell recompleted No. 5 Kirk pumping 80 bbls. of 26.3-gravity oil daily from 5,098 feet although current production is coming from above that point as the blank pipe was perforated at 5,045-95 feet.

In the Dominguez field, Union Oil Co. has completed No. 60 Callender pumping 430 bbls. of 29.7-gravity oil daily from 7,745 feet after finishing the hole with 1,380 feet of 5¾-inch liner including 541 feet of perforated landed at 7,740 feet.

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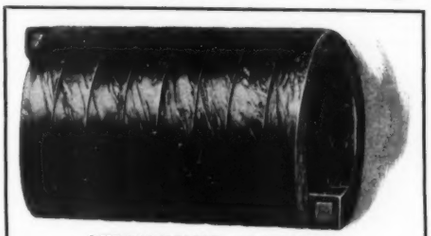

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Central West

By STAFF CORRESPONDENT

30 Oil Wells Completed in Illinois; 35 New Operations

MATTOON, Ill., May 9.—Thirty oil wells with a combined initial production of 7,606 bbls. of oil were completed in the Illinois fields in the past week together with one shallow gas well and two dry holes. Twenty-four of the oil wells were completed in the Centralia field in Clinton and Marion counties.

The Carter Oil Co. has three wells near completion in Fayette and Jefferson counties, and a flock of wells are in, or on top of, the Benoist sand in the Centralia field, and not yet tested.

New operations kept ahead of completions by a slight margin of two.

The completed wells of the week with their sand record and first 24-hour production are given below:

Centralia-Marion County

John Pugh Drilling Co. No. 1 Ford, SW SW SW section 7-1n-1e, sand at 1,368-76 feet, shot with 15 quarts, pumped an estimated 200 bbls.

George Anderson No. 1 Marshoff, NW cor. SW NW NW section 13-1n-1e, sand at 1,358-78 feet, shot with 5 quarts, pumped 250 bbls.

Ross Coleman No. 1 Marshall, NE cor. SW NW section 18-1n-1e, sand at 1,380-99 feet, shot, pumped 67 bbls.

Paul Doran and others No. 1 Welborn, NW cor. section 18-1n-1e, sand at 1,364-88 feet, shot with 20 quarts, pumped 175 bbls.

T. T. Eason & Co. No. 1 Schneider, SE cor. SW SW NW section 18-1n-1e, sand at 1,353-75 feet, shot with 10 quarts, pumped 240 bbls.

Reynolds and others No. 1 Willard, CWL NW NW SW section 18-1n-1e, sand at 1,351-79 feet, shot, pumped 287 bbls.

G. C. Roland No. 1 Reynolds, CWL NW NW NW section 18-1n-1e, sand at 1,368-82 feet, shot with 10 quarts, pumped 225 bbls.

Centralia, Clinton County

In the Centralia field, Adams Oil & Gas Co. No. 1 E. A. Baker, SE cor. SW SE section 12-1n-1w, Clinton County, had Benoist sand at 1,356-74 feet, which was shot with 15 quarts. It pumped 136 bbls. the first 22 hours.

George Anderson No. 1 Fowler, SW cor. NE SE section 12-1n-1w, sand at 1,358-77 feet, shot with 10 quarts, pumped 160 bbls.

G. H. Blankenship and others No. 2 Roth, SW cor. NE SW SE section 12-1n-1w, sand at 1,357-91 feet, shot with 10 quarts, pumped 175 bbls. of oil and 10 bbls. of water.

Blankenship and others No. 3 Roth, NW cor. NE SW SE section 12-1n-1w, sand at 1,354-80 feet, shot with 10 quarts, pumped 185 bbls.

Bonnie Oil & Gas Co. No. 1 Gerber, near SW cor. SE NE SE section 12-1n-1w, sand at 1,365-87 feet, shot with 10 quarts, pumped 250 bbls.

Roy Brown No. 1 Fortney, SE cor. NE SE SE section 12-1n-1w, sand at 1,364-86 feet; shot with 45 quarts, pumped 200 bbls. of oil and 10 bbls. of water.

Max Conry and others No. 2 Barth, SE cor. SW SE SW section 12-1n-1w, sand at 1,351-93 feet, shot with 5 quarts, pumped 10 bbls. of oil and 40 bbls. of water.

Crier and Grade No. 1 Lady, near NE cor. SE NE SE section 12-1n-1w, sand at 1,378-98 feet, shot with 12 quarts, pumped 50 bbls.

Thompson & Hutchins No. 1 St. Clair Foundry, NE cor. SE section 12-1n-1w, sand at 1,382-98 feet, shot with 15 quarts, pumped 125 bbls.

Adams Oil & Gas No. 1 Peter Heiss-B, SW cor. NE NE SE section 13-1n-1w, sand at 1,349-80 feet, shot with 20 quarts, pumped 250 bbls.

Bell, Riley and Lacey (formerly reported Bell Oil & Gas Co.) No. 1 Gambill and Gaither, CNL SW SE NE section 13-1n-1w, sand at 1,359-79 feet, shot with 10 quarts, pumped 135 bbls.

R. Blowers No. 3 Fairview Park, NW cor. NE NE NW section 13-1n-1w, sand at 1,378-91 feet, shot with 40 quarts, pumped 50 bbls. of oil and 15 bbls. of water.

Central Illinois Oil Co. No. 1 Sted, NE NE NE section 13-1n-1w, sand at 1,362-83 feet, shot with 15 quarts, pumped 20 bbls. of oil and 50 bbls. of water.

Nash, Redwine and others No. 1 Wilson, NW SW SE NE section 13-1n-1w, sand at 1,350-73 feet, shot with 15 quarts, pumped 140 bbls.

John Pugh Drilling Co. No. 1 Gutzler, SE NE SE section 13-1n-1w, sand at 1,356-76 feet, pumped 400 bbls.

Adams Oil & Gas Co. No. 5 Schmitz, SE NE SE section 2-1n-1w, had Benoist sand at 1,332-44 feet, which was shot with 10 quarts. The well pumped 32 bbls. initially.

Shell Petroleum Corp. No. 1 Geary-Criley, SE NE NE section 2-1n-1w, sand at 1,319-49 feet, shot with 10 quarts, pumped 85 bbls. in 16 hours, filling available storage.

Other Completions

In Clay County, Pure Oil Co. No. 8 Wilkin, CWL SW SE SW section 28-3n-8e, McClosky pay at 2,965-82 feet, flowed 289 bbls. of oil net after a 5,000-gallon acid treatment.

In Richland County, Pure Oil Co. No. 6 Montgomery B, C N half NE NW section 4-3n-9e, pay at 2,952-69 feet, and saturated dolomite at 2,992-95 feet and 2,997-3,013 feet, acidized with 5,000 gallons, flowed 389 bbls. of oil.

In Clay County, Kingwood Oil Co. and others wildcat, No. 1 Brissenden-Land Bank, C S half SW NW section 8-3n-7e, was abandoned as dry at 3,101 feet. It found no McClosky pay.

In Richland County, Pure Oil Co. No. 1 Schilling, C S half NE SE section 32-4n-9e, pay at 2,951-70 feet, flowed 813 bbls. in 28½ hours. Acidized with 5,000 gallons, it flowed 1,906 bbls. of oil in 24 hours.

Pyramid Petroleum Co. No. 1 University of Chicago, NW NW NW section 26-4n-10e, pay at 3,030½-36 feet, flowed by heads naturally through casing, 1,000 bbls. the first day and 1,000 bbls. the second day.

In Fayette County, Carter Oil Co. No. 1 Bartemus, C W half SE NE section 15-8n-3e, had Benoist sand at 1,486-98 feet. It was shot with 20 quarts and pumped 65 bbls. per day.

In Cumberland County, Jolly, Hill, Stipes and others No. 1 Jenkins, SE NE NE section 30-10n-9e, was a hole full of water at 2,320 feet and abandoned at 2,330 feet.

Santa Fe Oil & Gas Co. No. 4 Kohrman, SE NE NE SE section 5-1n-3w, Clinton County, Bartelso sand at 970-95 feet, shot with 40 quarts, pumped 110 bbls.

In Clark County, Stipes and others No. 1 Wilhoit, SW NE NW section 30-12n-13w, was completed as a gas well at 335 feet. It was good for 500,000 feet of gas per day. It had been plugged back from 403 feet.

First reports of new operations numbered 35, as follows:

In Clinton County, Centralia field, Ray Brown No. 2 Fortney, NE cor. SE SE section 12-1n-1w, drilling at 175 feet; J. D. Reynolds No. 1 Seigler, NW cor. NE SE section 12-1n-1w, drilling at 150 feet; Bailey & Lucas No. 2 Kuhn, near SE cor. NE SE section 13-1n-1w, rigging up; Bell, Riley & Lacey No. 1 Budde, SW cor. NE SE section 13-1n-1w, rig up; T. T. Eason & Co. No. 2 Saylor, NE cor. SW SE NE section 13-1n-1w, Benoist sand at 1,351-62 feet, total depth, set 6⅝-inch casing at 1,353 feet; Fritzie Oil Co. No. 1 Coe, NW cor. NE NE section 24-1n-1w, rig up; Illinois Producers No. 1 Meyers, NE NE NE section 24-1n-1w, rigging up; E. C. Phelps No. 1 F. Dodellet, C SW NE SW section 25-1n-1w, an outpost test, rig up.

In Marion County, Centralia field, Miller and others No. 1 Gregory, CEL SW SW SW section 7-1n-1e, drilling at 850 feet; Ray & Thorne No. 1 Scott, CSL NW SW NW section 7-1n-1e, drilling at 317 feet; Bell, Riley & Lacey No. 1 Home B. & L., CWL NE SW SW section 18-1n-1e, rig; M. L. Dorsey and others No. 1 Gudder, CWL NW NE SW section 18-1n-1e, shut down at 182 feet; Koenig & Son No. 1 Busse, near SE cor. NW NW SW section 18-1n-1e, moving in rotary tools; C. E. Lange No. 1 Broker, in NW NW SW section 18-1n-1e, drilling at 997 feet; R. A. Lincoln No. 1 Yunker, CEL NW NW NW section 18-1n-1e, drilling at 348 feet; John Pugh Drilling Co. No. 1 Church, CNL S half SW NW section 18-1n-1e, Benoist sand at 1,354-60 feet, set 5½-inch casing at 1,353 feet; L. J. Burch No. 1 McClelland, CNL NW NW NW section 19-1n-1e, rig up; Cypress Oil & Gas Co. No. 1 Titters, NW cor. SW NW NW section 19-1n-1e, rig up; Lewis & Bassinger No. 1 Koelling, SE cor. SW NW SE section 19-1n-1e, running 8¼-inch casing to 555 feet. Patoka Oil & Gas Syndicate, Ltd., No. 1 Thallman Estate, near C W half SW NW section 1-3n-1e, a wildcat, drilling at 307 feet.

In Fayette County, Carter Oil Co. No. 1 Holley, NE SE NE section 11-8n-3e, moving in rotary tools.

In Shelby County, Dr. O. C. Borah No. 1 Patten, C NE NE NW section 25-11n-2e, location.

In Washington County, Salvage Oil & Fuel Co. No 1 Reinkensmeyer, SE SE NW section 11-1s-2w, moving in material.

In Clinton County, Shell Petroleum Corp. No. 4 Koelmel, SW SW SW section 1-1n-1w, drilling at 90 feet; Adams Oil & Gas Co. No. 2 Keister, NE SE SE section 2-1n-1w, set 12½-inch casing at 62 feet; same company's No. 1 Keister, NE NW SE section 2-1n-1w, location; Adams Oil & Gas Co. No. 6 Schmitz, C SW NE SE section 2-1n-1w, location.

In Richland County, Pure Oil Co. No. 3 Colburn, 20 feet west of C S half NW SW section 33-4n-9e, set 9⅝-inch casing at 227 feet; Texas Co. No. 1 Zirkle, 300 feet from south and 592 feet from west lines of SW quarter section 23-4n-10e, location; Mammoth Producing & Refining Co. No. 1 McCauley, SE SE SE section 20-3n-9e, rig up; same company's No. 2 Stewart, 400 feet from west and 430 feet from north lines of NW quarter section 28-3n-9e, spudded; Pure Oil Co. No. 1 Taylor, 1,016 feet from north and 372 feet from east lines of NE quarter section 29-2n-9e, drilling at 1,605 feet.

In Clay County, Ohio Oil Co. No. 1 Negley, C E half NE SW section 24-4n-8e, location.

In McDonough County, O. H. Hammer No. 1 Clarence Jones, C NW section 22-7n-3w, was drilling at 190 feet. It topped Fredonia at 130 feet, which formation is found at around 2,900 feet in Richland County, in the deep part of the basin.

In Warren County, W. C. & W. Co. No. 1 Sorenberger, NE NE SE section 35-12n-1w, was drilling at 435 feet. Trenton lime is expected at about 600 feet.

Interesting Tests

In Lawrence County, Edward Geick No. 1 Guthridge, SE NW NW section 29-3n-12w, total depth 1,936 feet, pumped 25 bbls. of oil in five hours and later 10 bbls. in five hours. Casing, 5⅛-inch, is set at 1,919 feet.

In Edgar County, Sun Oil Co. No. 1 Goodwin, C W half NE SE section 22-13n-12w, was drilling at 1,848 feet.

In Jefferson County, Nollem & Benoist No. 1 Kelly, NE NW NE section 25-4s-2e, pumped from 4 to 10 bbls. per day from pay at 2,791-2,800 feet, but,

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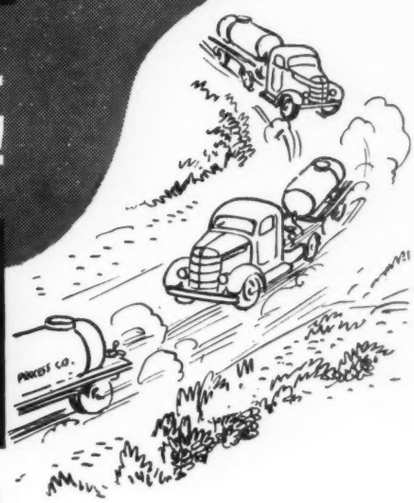

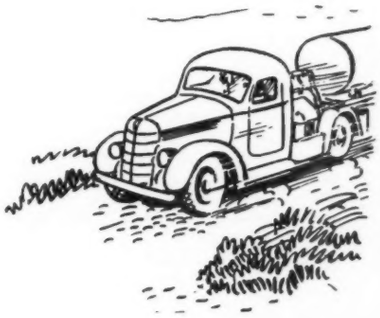

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drilling deeper, ran into sulfur water at 2,817-22 feet. the hole filling 2,700 feet. Casing was being pulled. the hole will be reamed and pipe rerun. Dee & Foltz No. 2 Hamilton, SW SW NW section 20-4s-3e, was drilling at 2,180 feet.

In Wayne County, Texas Co. No. 1 Heaton, C W half NE SE section 17-3s-7e, made a drill-stem test at 3,195-3,210 feet, open 20 minutes, recovering 30 feet of mud and a small showing of oil.

In Jefferson County, Carter Oil Co. No. 1 Lester Breeze, NE NE NE section 16-1s-2e, was shot with 15 quarts at 1,940-50 feet. It pumped 101 bbls. the first 24 hours, but was not completed.

In Richland County, American National Drilling Co. No. 1 Everson, NE NE SE section 23-3n-9e, had McClosky pay at 3,049-74 feet, but only salt water appeared, the hole filling 400 feet. The well was shut down for orders.

In Effingham County, Kingwood Oil Co. and others No. 1 McWhorter, C E half SE NW section 15-6n-6e, total depth 3,643 feet, set 8⅝-inch casing at 2,730 feet, and was drilling cement.

In Fayette County, Carter Oil Co. No. 1 Larimore, SE NE NE section 11-8n-3e, had Benoist sand at 1,567-84 feet and set casing at 1,568 feet. After plug was drilled the hole filled 350 feet with oil. It will be shot. Carter Oil Co. No. 1 Main, C W half NE SE section 15-8n-3e, was shot with 20 quarts at 1,548-58 feet and started flowing at the rate of 25 bbls. per hour, and was shut in for tankage.

INDIANA

Carter Oil Co. No. 1 Roy, C N half SE NE section 16-10n-10w, Vigo County, Indiana, was acidized at 2,154-64 feet, and pumped 36 bbls. of oil and 26 bbls. of water, and was completed. Same company was rigging up rotary for No. 1 William Strain, C S half NW NE section 16-10n-10w.

In Sullivan County, A. S. Reed and others were drilling in lime at 2,260 feet in No. 1 Springer, NW NE NE section 2-7n-10w. Felmont Corp. No. 1 Riggs, SW cor. SE NW section 36-8n-9w, was drilling at 3,134 feet.

In Posey County, Sun Oil Co. was drilling at 850 feet in No. 1 Dietz, SW SW SE section 1-7s-12w, and Michel & Nelson were reaming hole to lower 6⅝-inch casing in No. 1 Aldridge estate, SE cor. NE NE SW section 1-5s-3w, total depth of the hole 2,517 feet.

In White County, Mazda Oil Corp. No. 1 Meade, NE NE NE section 26-5s-9e, was drilling at 2,625 feet.

CENTRAL OHIO

FINDLAY, O., May 9.—Gas wells predominate in completions for central Ohio this week. In Ashland County, Hanover Township, Ohio Fuel Gas Co. No. 1 Amanda O'Hara, Section 15, completed in Clinton sand at 2,824 feet, started with 380,000 feet of gas.

In Athens County, Carthage Township, A. D. Townsend No. 1 Aldo McKinley, Fraction 3, was dry and abandoned at 1,282 feet. In Lodi Township, Ohio Fuel Gas Co. No. 1 W. E. Seaman, Section 17, is good for 100,000 feet of gas per day from second Berea sand at 1,460 feet.

In Guernsey County, Jefferson Township, George Jewell No. 3 Mathew T. Kennedy, section 7, is a gas well gauging 230,000 feet per day from the Berea at 1,521-23 feet. In Washington Township, Jones & Jewell No. 1 T. M. Grimsley, section 13, was dry in the Berea sand from 1,283-1,308 feet, and abandoned.

In Knox County, Howard Township, H. E. Perkins No. 1 James Henwood, section 15, had 686,000 of gas per day in Clinton sand at 2,678 feet. In Jackson Township, Scott No. 1 E. J. Miller, section 22, made 1 bbl. of oil and 25,000 feet of gas per day from Clinton sand at 2,926-77 feet. In Union Township, Ewing and others No. 1 Bruce Hobbs, section 4, in the village of Danville, made 2,190,000 feet of gas from Clinton sand at 2,778-2,800 feet.

In Licking County, in Franklin Township, Wehrle Gas Co. No. 1 George A. Ketner, section 13, found the Berea dry at 731-46 feet. In Perry Township, Rutlege & Mosholder No. 1 L. G. Pader, section 6, is good for a small gas well in the Berea sand at 860-70 feet.

In Lorain County, Grafton Township, Dillon & McFrederick No. 1 Jacob Schwearer, sectional lot 37, made 824,000 feet of gas from the Clinton sand at 2,516-24 feet.

In Tuscarawas County, Lawrence Township, East Ohio Gas Co. No. 1 C. Swank, section 14, made 238,000 feet of gas per day from Stray and Red Clinton sands at 4,537-89 feet; total depth, 4,731 feet.

In Washington County, Grandview Township, McCall Drilling Co. No. 2 Curtis A. Price, section 21, made 6 bbls. of oil from the first Cow Run at 790-810 feet, the first day after shot. In Salem Township, Twin Oaks Oil Co. No. 17 Christian Lauer, lot 40, is a 1-bbl. pumper in the Buell Run sand at 261-70 feet.

Lima Field

In Seneca County, Liberty Township, Forest Oil Co. No. 5 Homer Martin, section 25, is a small gas well in the Trenton rock at 1,438 feet.

Another Green sand test has been started by A. J. West at No. 1 A. M. Clouse, section 17, Clinton Township, Seneca County. The test is approximately 400 feet east of the Green sand well recently completed on this tract.

WESTERN KENTUCKY

OWENSBORO, Ky., May 9.—The Hoosier Drilling Co.'s 1,200-bbl. initial producer in the Birk City district in Henderson County is flowing 450 bbls. a day, choked down. Six other operations have been started near the well including Clark & Snyder and others No. 1 Tom Polk, moving in rotary; Snowden & McSweeney No. 1 Francis Dempwolf, 40 acres, moving in rotary; W. E. Hupp and others No. 1 Mrs. Julia Gatewood, 10-inch casing cemented at 125 feet and resumed drilling, rotary; J. C. Ellis No. 1 K. A. Jones, drilling at 75 feet; Carter Oil Co. No. 1 O. L. Boswell, moving in rotary; Hoosier Drilling Co. No. 2 C. T. Blackwell, moving in rotary.

Other completions and new operations in the district are as follows:

In Henderson County, Niagara district, Mecca Oil Co. No. 2 J. W. Wilson, moving in. Anthoston district: Mecca Oil Co. No. 1 Grasty Heirs, dry hole through Nunn sand, 729-44 feet. Reed district: Petroleum Exploration Co. No. 1 Southern Trust Co., spudding in.

In McLean County, South Livermore district, Mathews & Preston No. 4 Hollis Howell, drilling at 100 feet. Utica district: Amos Schaffer and others No. 3 Boyd Bristow, deep test, drilling at 1,599 feet.

Breckinridge County, Glenn Dean district: Vernan C. Hastings No. 1 W. H. Whitler, 5-bbl. completion, Bethel sand, 237-46 feet, shot; No. 1 F. H. Harrison, moving in. Bryant & Patton No. 2 J. E. Johnson, 28,000 feet of gas, 107 pounds rock pressure. Falls of Rough district: A. V. Smith and others No. 1 Garland Parton, 25,000 feet of gas at 310 feet, hole full of water at 320 feet, Bethel sand at 310-22 feet, abandoned. Cloverport district: Flesher & Galey No. 1 J. W. White, deep test, drilling at 750 feet. William Railston No. 1 Acos Bros., deep test, drilling at 1,080 feet.

In Butler County, Tilford district, J. C. Miller, trustee, and others No. 1 Minnie Embry, dry hole at 2,068 feet, black shale at 1,700-1,922 feet.

In Daviess County, Berry School district: Globe Oil Co. and others No. 2 B. W. Barrett, 150,000 feet of gas, 101 pounds rock pressure, Jones sand, 608-29 feet, gas at 615 feet, total depth 635 feet. Pleasant Ridge district: Dr. Emerson No. 1 Mack Higgs, 6-bbl. completion in 12 feet of Barlow sand. Cane Run School district: J. C. Ellis & Ashby No. 9 Myrtle Howard, 12-bbl. completion in Jett sand at 626-48½ feet, total depth 650 feet, shot with 80 quarts. Birk City district: W. W. Bailey and Jess Ashby No. 1 Mrs. Sapp, rigging up. J. P. Warren No. 1 J. F. Smith,

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spudding in. W. E. Hupp and others No. 1 Livermore Timber Co., 99 acres, moving in. North Livermore district: The Petroleum Co. No. 1 Kelly Atherton, dry hole, Bethel sand, 1,055-78 feet, hole full of water at 1,066 feet. Island district: South Penn Oil Co. No. 1 Alma Nall, 65 bbls., Jett sand, 1,426-50 feet, total depth 1,453 feet, shot with 20 quarts, completed.

In Ohio County, Dundee district, Lavigne & Joiner No. 4 Charles Polk, 134,000 feet of gas, 202 pounds rock pressure, Jackson sand at 627-34 feet. Charles Marsh and others No. 1 Joe S. Babbitt, drilling at 130 feet. Habit district: J. C. Ellis No. 7 J. S. Bartlett, key well, total depth 523 feet. Mecca Oil Co. No. 5 L. Bartlett, spudding in. Oakes district: Antone & Huff No. 4 Charles Downes, 5 bbls., Jett sand, 334-64 feet, total depth 367 feet, completed; No. 5, moving in. Friendship Church district: A. Teller and others No. 15 A. A. Whitehouse, 8 bbls., Barlow sand, 661-79 feet, total depth 682 feet, shot with 80 quarts, completed. Barney Calvert No. 7 R. P. Kelly, 5 bbls., Jett sand, completed.

In Muhlenberg County, Paradise district, South Penn Oil Co. No. 3 Rogers-Crescent Coal Co., deep test, drilling at 1,100 feet.

In Webster County, Sebree district, I. B. Browning and others No. 6 J. R. Ramsey, deep test, drilling

(Continued on Page 340)

Michigan Field Report

By
O. C. PRESSPRICH

Allegan County Leads Field Results and New Operations

SAGINAW, Mich., May 9.—Western Michigan, represented by Allegan County's various pools, again topped Michigan oil production the past week, though interest remained focused on Midland County's Edenville field, which, however, did little to answer the question as to its extent or its potential production.

Allegan County marked up six acidized producers and two dry holes for the week, while Edenville added two new producers and one dry hole. The dry hole was in the south sector, confirming a failure forecast a week ago.

Prolific Buckeye failed to add a completion in the week, but broke into the production column via acid treatment of a producer, doubling its natural production.

A flurry of interest developed in Midland County's Mills Township, approximately 2 miles south of the Bentley Township pool in Gladwin County, but later indications apparently voided early favorable indications. The wildcat test was McClanahan Oil Co. and Pure Oil Co. No. 1 Ault, NE SE NW section 11-16n-2e, which picked up gas pressure and a showing of oil 109 feet in the Dundee limestone. Casing was run and the test deepened, but no more oil was found down to 160 feet in the Dundee. Mills Township long has been regarded with speculation, but doubts arose as a result of this unfavorable showing.

Allegan County

Three favorable producers and a dry hole were logged in Salem Township's highly active field the past week. All were acidized producers. Regal Dutch Refining Co. added two, one of them the largest of the week in the Allegan field. Regal's No. 2 Smith Estate, NW NE NW section 22-4n-13w, gauged an estimated 500 bbls. daily, and No. 1 Lampen, NW NE NE section 20-4n-13w, was an estimated 400-bbl. daily producer. Salem Oil & Gas Co. No. 3 Rash, SE SW NW section 16-4n-13w, rated 200 bbls. daily. The one dry hole in the Salem field was Michigan Devonian Petroleum Corp. No. 2 Seabright, SE SE SE section 17, which failed to rate commercially and was abandoned. Scattered tests throughout Salem Township have proved up considerable territory, with activity brisk in staking of new locations.

A small commercial producer and a dry hole were developments of the week in Dorr Township's new pool. Eureka Development Co. No. 2 Widenfeller, SE NW SW section 29-4n-12w, developed into a 50-bbl. daily producer after acid, and L. B. Chulski Trust No. 1 Mroczkowski, SE SW SE section 33-4n-12w, a southerly extension attempt, was dry.

The Monterey Township field, the most active new pool in Allegan, added a highly favorable producer at Muskegon Development Co. No. 2 Swanders, SW SE SW section 9-3n-13w, showing 300 bbls. daily after acid. Another of the same company's tests is scheduled for drilling. Considerable drilling activity is apparent in Monterey.

Crystal Syndicate's No. 1 Jewell, NW NW NE section 3-1n-12w, regarded as a dry hole in the Traverse two weeks ago, was acidized into a 45-bbl. daily producer last week to open possibilities of a new Allegan field in Otsego Township.

Midland County—Edenville Township

Clouds of doubt and optimism continued to alternate in the Edenville area pool, with production developments still withholding a clue to the extent of the field. One test, Chapman Oil Co. No. 2 State, SW SW NE section 27-16n-1w, offset to the discovery well, was added to the field, but proved nothing not already known. The test, after acid, developed 250 bbls. daily. The only other new production was at Pure Oil Co. No. 1-A State-Pure-Shell, NE NE SW section 27-16n-1w, which came in Thursday night with an estimated production of 300 bbls., natural flow, despite lack of a 24-hour gauge. The test bottomed at 3,800 feet, 5 feet in the soft pay, and, like similar producers near the discovery, failed to prove anything in particular about the field.

Establishment of anything resembling boundary markers for the field through current tests is not yet possible, although development in an easterly direction from the discovery well was looked to for establishment of possible production. Sun Oil Co., which encountered difficulty in pinching in its No. 1-B State, NW NW SE section 27-16n-1w, succeeded in erecting storage facilities and ran a 700-bbl. daily gauge on the test, natural production. It was the largest producer in the area, rivaling the Chapman discovery. Gordon Oil Co. No. 1-F State, NW NW NW section 35-16n-1w, which a week ago bore indications of being dry, was confirmed as such and abandoned. This dry one confirmed again the possibility of a southern boundary already defined. The Gordon dry hole is three-fourths mile south of the Gordon-Verity well, a 500-bbl. producer.

Midland County—Jasper Township

Pure Oil Co. tapped a possible commercial pool in Jasper Township the past week when its No. 7-D Rayner, S SW SE section 12-13n-2w, rated acidized production of 50 bbls. daily.

Gladwin County

Activity slowed in Buckeye Township's prolific field the past week, with no wells entering the production stage. One was acidized. Marshall Bauman No. 2 Hostetler, SE NE NE section 27-18n-1w, west extension in the midway sector in the south (Oard) pool, and doubled its production to 300 bbls.

Although lacking in completions, Bentley Township continued to show more activity in drilling than other oil district in Gladwin County. Two wells were added to production, one being semi-completed. Both are in section 20, where previous tests have been favorable. D. F. Jones No. 2-A State, NW NW SE section 20-17n-2e, acidized a small natural show to a 90-bbl. daily producer, and Dunham & Jones No. 2 LaFurgey, NE SW NE section 20-17n-2e, reported 2,500 feet of oil in the hole, with plans to acidize. In all, more than 15 tests are drilling Dundeeward, in various stages of completion, in the Bentley area.

Hope of adding a third producer to the Secord field, 10 miles northeast of Buckeye, ran high as Whitehall & Drury No. 1 Link, NE NE NE section 14-19n-1e, approached the Dundee limestone. The test is three locations south of the discovery well and formations were reported regular. Two other small commercial producers are active in the sector.

Clare County—Grant Township

Definite failure was logged at Gulf Refining Co. No 1 Doherty, SW SW SW section 25-17n-4w, second attempt to tap a commercial oil pool in the area. The test drilled on to water after finding the Dundee dry. The test was a north offset of Gulf's first oil test in the area, which developed into a 14,000,000-foot gasser.

Mecosta County—Sheridan Township

Failure was registered at Frank Hebard No. 1 Weeks, SE NE SE section 32-15n-7w, which drilled into water at 3,784 feet. No favorable showing of oil was encountered 8 feet in the Dundee, where water was tapped.

Wexford County—Haring Township

A wildcat test, G. H. Schrack No. 1 fee, SW NW SW section 17-22n-9w, was nearing the Dundee in an attempt to find a deep oil-bearing stratum. Considerable core testing was done near Cadillac several years ago, but to date no deep tests have found production.

Allegan Attracts Operators

Allegan County's steadily increasing prominence in the Michigan oil picture is reflected in the past week's list of drilling permits issued by the state conservation department, with 16 of the 31 licenses for oil tests going to that county. The Allegan development, which began in Salem Township and spread to Monterey and Dorr townships, now is pushing farther afield, into Watson Township.

Gladwin County was second in the list with five permits, four of them in the rich Buckeye area, one in adjacent Tobacco Township. Isabella and Midland counties rated three apiece, Isabella's scattered between Broomfield, Vernon and Wise townships, Midland's between Edenville, Larkin and Lincoln townships. Kalamazoo, Kent, Otsego and Van Buren counties completed the list with one wildcat test each.

Sale of State Lands

The largest acreage of state lands to be offered for oil and gas leasing since December, 1936, will be recommended for auction at this week's meeting of the state conservation commission. F. P. Struhsaker, chief of the department's lands division, reports application has been made for the leasing of 54,650 acres in six counties. The largest previous state land lease auction was 88,000 acres in December, 1936.

In the current recommendation will be 1,700 acres in Otsego County and 16,500 acres in Montmorency County, the first time such a step has been taken in these two areas. Other acreages recommended for lease are 27,650 acres in Roscommon County, 1,500 acres in Osceola County, 1,300 acres in Midland County, and 9,200 acres in Crawford County.

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Kansas Developments

By
DAL DALRYMPLE

Start Riley County Wildcat; Ellsworth Strike Completed

The search for new producing areas in Kansas was extended the past week, when locations were announced or work started at several wildcat and extension wells. Unfavorable weather of the past week, combined with a poor market condition, accounted for the continued lethargy in general field operations but failed to stop the march of the wildcatters.

One of the new wildcats is in Riley County, about 2 miles east of Manhattan. It is the J. J. Vanier and S. L. Wagaman No. 1 Parks, SE cor. section 16-10-8, with Coronado Oil Co. having the drilling contract. It is to be drilled with cable tools to 2,500 feet. Location is on the northwest flank of a structure on the Nemaha granite ridge, about 38 miles northeast of the Wilsey gas pool in Morris County. Viola and Arbuckle lime formations will be tested.

Other new outposts included the following: Stanolind Oil & Gas Co. No. 1 Soeken, C SE NW section 5-20-11w, 1 mile northeast of the West Ellinwood pool in Barton County; Shell Petroleum Corp. No. 1 Radenburg, SE NW section 3-17-13w, south of production in the Ainsworth pool, Barton County, in an area where three other wildcats are located, these being Armer & Nernon No. 1 Seyfert, NW SW NE section 3-17-13w, Western Kansas Oil & Refining Corp. No. 1 Lisner, SW SW SE section 3-17-13w, and Deep Rock Oil Corp. No. 1 Drake, NW NW SE section 4-17-13w; Ace Oil Co. No. 1 Kirkpatrick, SW SE NW section 24-25-1e, 8½ miles northeast of Wichita in Sedgwick County; C. L. Carlock No. 1 Richardson, SE SW section 10-24-11w, a mile west of the Zenith pool, Stafford County; William H. Gaddis and others No. 1 Potford, NE cor. section 12-26-9w, 1½ miles northeast of the Lerado field, Reno County, and Z. N. Dunlap and others No. 1 Warren, NW cor. section 4-28-10, Greenwood County.

A shallow gas pool was opened 1½ miles north of Independence, Montgomery County, at Gerald McDaniel and associates No. 1 Unitta, NE NE NW section 18-22-15. It was estimated good for 2,000,000 feet of gas at 870 feet. Nearest production is 2 miles eastward.

Stanolind Oil & Gas Co. No. 2 Siefkes, NE SE NE section 3-22-12w, wildcat in Stafford County, 1½ miles southeast of the Sittner pool, was rigging up standard tools preparatory to drilling in. It had Arbuckle lime at 3,594 feet, 3,601 feet, total depth, with some saturation in cores.

Wildcat Activity

Ralph Wixson and others No. 1 Peterman, SW cor. section 28-17-10w, opened a new producing area 1 mile north of the Stumps pool, in Ellsworth County. It was acidized and pumped 131 bbls. of oil in the first four hours of potential test, 156 bbls. in the next four hours and was given potential rating of 786 bbls. of oil, with 15 per cent water. Anhydrite was topped at 530 feet; Topeka lime 2,585 feet; Kansas City lime 2,973 feet; Conglomerate 3,264 feet; Arbuckle lime 3,277 feet; total depth 3,306 feet, plugged back to 3,300 feet.

Stanolind Oil & Gas Co. No. 1 Carlile, NE SE SW section 22-25-12w, Stafford County wildcat, had Arbuckle lime at 4,218-39 feet, total depth, with nothing showing, and was abandoned.

Saco Oil Co. and others No. 1 Phipps, SW SE NE section 24-30-1w, wildcat in Sumner County, was dry and abandoned in Arbuckle lime at 3,953-65 feet, total depth.

Saco Oil Co. and Kansas-Gulf Co. No. 1 Pettit, SW NW SW section 21-28-6, Butler County wildcat, had a hole full of water in Arbuckle lime at 3,208-20 feet, total depth, and was abandoned.

Three new wildcats were listed in first reports of the week, as follows:

Carlock No. 1 Richardson, SE SE SW section 10-24-11w, Stafford County, on Stanolind Oil & Gas Co. farmout, a rig.

Polhamus No. 1 Clawson, SE SW NW section 7-24-4e, Butler County, rigging up machine.

Hutchinson Oil & Gas Co. No. 1-A Ketchen, SW SE SE section 11-35-5, Cowley County, drilling below 1,450 feet.

Estimated Daily Production

Estimated daily production for Kansas for the week ending May 7, and for the preceding week was as follows:

	Barrels	
	May 7	Apr. 30
Oxford City	1,275	1,325
Burrton	11,700	11,725
Ritz-Canton	5,000	5,025
Graber	2,650	2,675
Hollow-Nikkel	2,750	3,150
Lerado	1,750	1,500
Voshell	2,350	2,525
Wellington	2,750	2,675
Ellsworth County:		
Lorraine	1,475	2,325
Other pools	1,200	1,205
Rice-Barton counties:		
Bloomer	1,925	3,050
Chase	4,000	5,550
Geneseo	2,275	2,825
Raymond	925	950
Silica	10,850	14,450
Silica—South	1,625	3,275
Keesling	750	1,025
Wherry	2,775	5,025
Miscellaneous Rice	3,005	4,645
Miscellaneous Barton	5,630	6,725
Russell County:		
Fairport	2,295	2,125
Gorham	1,905	1,465
Russell	1,430	1,125
Sullivan	5,635	6,430
Trapp	10,005	10,269
Miscellaneous Russell	9,680	8,395
Sedgwick County:		
Valley Center	1,020	1,005
Miscellaneous	2,830	2,785
Ellis County:		
Bemis	6,525	7,100
Miscellaneous	4,515	3,655
Kingman County	490	565
Stafford County	2,725	2,820
Greenwood County	9,650	9,500
Butler County	14,750	15,250
Other fields	22,785	23,611
Total Kansas	162,900	177,750

Russell County

Largest of two producers completed in the Trapp district, Russell County, was Darby Petroleum Corp. No. 8 Michaelis, NW SE SE section 36-15-14w. After acidizing with 3,000 gallons, it pumped 389 bbls. of oil in the first four hours and made potential of 2,338 bbls. Top of Arbuckle lime was 3,290 feet, total depth 3,300 feet.

The other Trapp completion was Gulf Oil Corp. No. 11 Michaelis, SW NE SW section 32-15-13w. It had Arbuckle lime at 3,330-45 feet, total depth, pumped 454 bbls. of oil in 10 hours and on potential test pumped 370 bbls. of oil in the first four hours, making potential of 2,191 bbls.

In the Gorham district, Stanolind Oil & Gas Co. No 13 Baxter, SE NE NW section 5-14-15w, topped Kansas City lime at 3,041 feet and had pay at 3,068-72 feet, total depth. It made potential of 332 bbls. of oil.

J. C. Shaffer, Inc., No. 7 Cram, SW NE SE section 11-14-15w, made potential of 96 bbls. of oil, with 50 per cent water, after acid treatment. It topped Kansas City lime at 3,022 feet, total depth 3,075 feet.

Central Petroleum Co. and others No. 7 Rouback A, NE NW NE section 15-14-15w, found Gorham sand at 3,265-67 feet, total depth, and made potential of 838 bbls. of oil.

Simon Lebow No. 1 Preston, NW NW NE section 22-14-15w, found Arbuckle lime at 3,251-65 feet, total depth, water intruded and it was abandoned.

Texas Co. No. 3 Schnoor, NE NW SW section 31-14-13w, Hall area, had Gorham sand at 3,211 feet, total depth 3,218 feet, pumped 74 bbls. of oil in the first four hours and made potential of 370 bbls. of oil.

In the Fairport sector, Liggett Oil Co. No. 2 Durham, NW SE NE section 20-11-15w, had Kansas City lime pay at 3,179-3,200 feet, total depth, was acidized and made potential of 129 bbls. of oil.

Two new tests in the Trapp field were reported: W. I. Southern, Inc., No. 4 Neidens, SW NE NE section 32-15-13w, set surface casing; Gulf Oil Corp. No. 12 Michaelis, NE SW SW section 32-15-13w, rigging up rotary.

Barton County

Shell Petroleum Corp. No. 2 Margheim, NE NE NW section 12-16-14w, Trapp area, Barton County, found Arbuckle lime at 3,314 feet, was bottomed at 3,332 feet and swabbed 373 bbls. of oil in nine hours. On completion test, it pumped 320 bbls. of oil in the first four hours and made potential of 1,859 bbls. of oil.

Two other tests in the same general area were failures. Shell Petroleum Corp. No. 1 Bitter A, NE cor. section 11-16-14w, found Arbuckle lime at 3,323 feet, total depth 3,376 feet, water intruded and it was abandoned.

Same company's No. 1 Schneider D, SE NE SE section 3-16-14w, topped Arbuckle lime at 3,346 feet, total depth 3,591 feet, and was dry and abandoned.

New work in Barton County: Helmerich & Payne No. 6 Stettinger, NE SW NE section 1-16-14w, Trapp area, was a location; Shell Petroleum Corp. No. 2 Bitter A, C NE section 11-16-14w, Trapp Southwest, drilling below 623 feet; same company's No. 1 Radenberg, SE SE NW sesction 3-17-11w, Kraft pool, rotary rig: J. A. Rankin No. 1 Essmiller, NE SW SE section 16-19-14w, Heizer area, machine; Indian Territory Illuminating Oil Co. No. 1 Bryant B, NE NE NW section 26-20-11w, Silica South pool, rotary rig.

Rice County

Continental Oil Co. and others No. 1 Hamilton, SW SE SE section 13-18-8w, Geneseo field, Rice County, topped Arbuckle lime at 3,216 feet and was bottomed at 3,220 feet. It made potential of 902 bbls. of oil naturally, was acidized, pumped 494 bbls. of oil in the first five hours and was estimated good for 2,300 bbls. of oil daily.

Stanolind Oil & Gas Co. No. 1 Gossman, SE SE NW section 28-19-10w, Silica district, found Arbuckle lime at 3,288 feet, total depth 3,301 feet, and was completed for daily potential of 125 bbls. of oil, with 69 bbls. of water.

Three new tests reported in Rice County were: Frank Hollow and others No. 3 Stout, NW SE NE section 6-18-10w, Stumps area, drilling below 516 feet; Continental Oil Co. No. 4 Ainsworth A, NW SW NW section 30-18-7w, Geneseo district, building rotary rig; L. E. Douglass Oil & Gas Co. No. 5 Hauschild, SW SW NW section 15-21-7w, Wherry pool, set 16-inch casing at 110 feet.

Ellis County

Largest of two producers completed in the Bemis field, Ellis County, was Margay Oil Co. No. 4 Johansen, NE SW SE section 22-11-17w. It found Arbuckle lime at 3,412 feet, was bottomed at 3,416 feet and made potential of 3,019 bbls. of oil.

Shell Petroleum Corp. No. 6 Rumsey, SE NW NW section 23-11-17w, made potential of 2,908 bbls. of oil from Arbuckle lime topped at 3,349 feet, total depth 3,367 feet.

Stafford County

Stanolind Oil & Gas Co. No. 2 Teichman, NW NW SE section 13-22-13w, Drach area, Stafford County, swabbed 98 bbls. of oil in two hours after third acid treatment and was completed for potential of 582 bbls. of oil. Arbuckle lime was found at 3,690 feet, total depth 3,702 feet.

New operations in Stafford County: Atlantic Refin-

ing Co. No. 2 Harris, SE SE NW section 33-21-12w, Sittner pool, building rotary rig; Stanolind Oil & Gas Co. No. 2 Harms, SW SW NE section 13-22-13w, Drach area, location; Sinclair Prairie Oil Co. No. 2 Krey, NW NW NE section 14-24-11w, Zenith field, building rotary rig; Stanolind Oil & Gas Co. and others No. 2 Volker, SE NE NE section 23-24-11w, rotary rig; same company's No. 3 Hartnett, NE NE SE section 23-24-11w, rotary rig.

Harvey County

E. J. Shaffer and others No. 1 Wilson, C SW NW section 20-23-3w, Burrton district, Harvey County, found Chat at 3,265 feet, had pay at 3,361-64 feet, total depth 3,400 feet. It pumped 200 bbls. of oil initially, was acidized and then pumped and flowed 960 bbls. of oil, with some water, in 24 hours.

Continental Oil Co. No. 1 Bott, CWL SW NW section 7-23-3w, found Chat at 3,297 feet, total depth 3,426½ feet, was acidized two times and completed for potential of 203 bbls. of oil, with water. Pay was found at 3,363-75 feet.

New work in Harvey County: Imo Oil & Gas Co. and others No. 2 Sperling, NE cor. section 23-22-2w, an old well in the Sperling area, was dry and abandoned after deepening from 2,980 feet to 3,313 feet; T. C. Johnson No. 1 Dyck, C SE NE section 19-23-3w, Burrton area, building rotary rig; Olson Oil Co. and Shell Petroleum Corp. No. 7 Nelson, C E half E half NW section 30-23-3w, building rotary rig.

Ellsworth County

Western Kansas Oil & Refining Co. No. 1 Stoltenberg, NE NE NW section 21-16-10w, Stoltenberg area, Ellsworth County, topped Arbuckle lime at 3,398 feet, had a hole full of water at 3,436-41 feet, total depth, and was abandoned.

Cities Service Oil Co. and others No. 3 Schroeder A, C E half E half NW section 29-17-9w, Schroeder area, was a location.

Sumner County

Magnolia Petroleum Co. No. 2 Baird, CEL E half SW section 2-30-4w, Anness area, Sumner County, topped Arbuckle lime at 4,514 feet, had a hole full of water at 4,527 feet, total depth, and was abandoned.

Rush County

Schermerhorn-Winton and others No. 1 Strong, CEL E half SW section 26-18-16w, Otis area, Rush County, found LaMotte sand at 3,550 feet, total depth 3,580 feet, and plugged back to 3,573 feet. It pumped 71 bbls. of oil in the first four hours and made potential of 293 bbls. of 38-gravity oil.

Butler County

Sheldon & Wixson and others No. 4 Dohren, SW SW NE section 11-25-3e, Moore area, Butler County, found Mississippi lime at 2,678 feet, was bottomed at 2,691 feet, acidized and pumped 80 bbls. of oil daily.

Woodson County

C. L. Sheedy and others No. 14 Klick, NE SW SE section 20-25-14, Woodson County, found Bartlesville sand at 1,405 feet, total depth 1,440 feet, was shot and completed for an estimated 20 bbls. of oil daily.

Ward McGinnis No. 1 Manifold, SE SE NW section 31-23-15, was rigging up machine.

Additional New Work

In Reno County, I. Nadel No. 10 Tucker, CWL E half NW section 19-24-4w, Burrton area, set 10-inch casing at 402 feet; Simpson & Noble and others No. 1 Thome, NE NE NW section 17-26-4w, Hilger pool, set 13-inch casing at 175 feet.

(Continued on Page 331)

Eastern Field Report

By STAFF CORRESPONDENT

Oriskany Gasser in Kanawha Is Good for 14,210,000 Feet

PITTSBURGH, Pa., May 9.—A small increase in new operations is noted in the lower Eastern fields. However, the completions for the past week were few and entirely routine with the exception of one Oriskany gas well in West Virginia and a fair gas well in the same district. Operations totaled 17 for the week of which 6 were dry, 9 gas wells, and 2 producers having a daily initial of 13 bbls.

SOUTHEAST OHIO

In Athens County, the East Ohio Gas Co. drilled a dry hole on the Harold Bitner farm, in section 18, Jefferson Township, through Clinton sand to 2,898 feet.

In Licking County, George H. Long No. 8 completed No. 3 Layman, in section 10, Mary Ann Township, in Berea sand at 799 feet. It produced 8 bbls. the first day after shot.

In Medina County, D. A. Eaken No. 17 Broadsword, Tract 16, Lot 21, Chatham Township, was dry in Berea Grit, bottomed at 408 feet.

In Monroe County, John Lumbatis and others completed a test on the Lillian Carpenter farm, in section 9, Franklin Township, in Berea Grit at 1,725 feet. It is a gas well gauging 125,000 feet a day.

In Morgan County, T. Pettit's G. E. Vanhorn test, in section 19, Union Township, was drilled through Cinnamon sand to 2,270 feet and was dry. One mile north of Chesterhill in section 11, Marion Township, the Paramount Oil & Gas Co. drilled a dry hole on the W. C. Palmer farm through the Salt sand to 929 feet.

WEST VIRGINIA

In Calhoun County, West Virginia, G. K. and M. S. Rodgers completed a well on the D. M. Miller farm in Sheridan district in Injun sand at 2,142 feet and it is good for 5 bbls. a day.

In Wirt County, the best gas well outside of the Oriskany pool was completed. In Burning Springs district, Glen F. Roberts completed the No. 2 N. T. McConaughey in the Injun sand at 1,714 feet and it is showing 6,000,000 feet of gas a day.

In Calhoun County, O. E. Garrett and others No. 2 S. H. Wilson, in Sherman district, was completed in Injun sand at 1,900 feet and is showing 50,000 feet of gas a day along with some oil.

In Gilmer County, W. H. Petry and others test on the T. A. Reed farm, in Glenville district, is a 50,000-foot gas well in Big Injun sand at 1,511-18 feet. In this district, E. L. Bush completed No. 2 Young and others at 1,927 feet. The Big Injun sand was at 1,858-1,918 feet with 328,000 feet of gas at 1,858-60 feet.

In Kanawha County, Koontz and Osborne test on the Sarah C. Osborne farm in Cabin Creek district, is a gas well in Big Injun at 1,881-1,907 feet, and Weir sand at 1,968-2,125 feet. It is good for 106,500 feet of gas a day.

In Lewis County, Hope Natural Gas Co. drilled No. 7790, Amanda Summers farm, Skin Creek district, to 4,505 feet and it was dry. The Benson sand was at 4,230-38 feet.

In Pleasants County, the Cooper Oil Co. drilled a test on the Ambler Smith farm in Washington district through the Salt sand and it was a dry hole.

In Wetzel County, a retarded report gives the completion of the Paul Amos Oil & Gas Co. on the Amos heirs in Greene Township, as a gas well gauging 712,000 feet a day from the Big Injun sand with a final depth of 2,156 feet. The sand was at 2,103-47 feet.

Oriskany Gas Field

In Kanawha County, the United Fuel Gas Co. completed No. 4784, Gibson land, Poca district, as a gas well at 4,920 feet, with the Oriskany sand topped at 4,902 feet and a final gauge of 14,210,000 feet a day. In this district, South Penn Oil Co. made a location for a test on the Virginia E. Monk farm about 1¼ miles due south of the gas well on the Albert Moore farm. This company drilled Onondaga lime in No. 3 S. S. Beanne, set pipe, and is now drilling through the formation. In No. 5 T. H. Newhouse, this company is drilling at 1,525 feet and in the Beanne-Newhouse line test at 415 feet.

New Work and Operations

In Cabell County, Hess Oil Co. has started drilling on the Maud May farm in Barboursville district.

In Jackson County, Cunningham Gas Co. is down 1,690 feet in the test on the E. F. Cunningham farm in Ripley district. In Washington district, the C. F. Goebel Oil Co. is drilling at 500 feet on the Boyd E. Warne farm.

In Geary district, Roane County, the United Fuel Gas Co. is spudding No. 4798 on the Samuel W. Vineyard farm. In Harper district, O. H. Reed and others are fishing at 680 feet in the P. V. Litton test.

In Nicholas County, the Hope Natural Gas Co. reached 2,574 feet in No. 7795 on the Federal Coal Co. tract, in Jefferson district, testing about 47,000 feet of gas. In Doddridge County, the Henderson Oil Co. is drilling deeper in the test on the Alex Ligett farm in Central district, and have reached 2,095 feet.

SOUTHWEST PENNSYLVANIA

In Southwest Pennsylvania, North Strabane Township, Washington County, Keystone Drilling Co. completed No. 2 J. C. Beabout at 1,376 feet, Salt sand. It is a gas well. In this township, Beedle and Debone have reached 1,076 feet in the test on the John Arblaster farm. In South Franklin Township, F. K. Fawcett and others No. 2 Jason Buchanan was drilling at 300 feet. In Morris Township, Union Gasoline & Oil Corp. is drilling at 610 feet in No. 4 W. E. Craft.

In Amwell Township, Washington County, this company has rig up for No. 814 Leroy Vankirk. In Dinegal Township, Heidlemier and others are drilling at 760 feet in the J. M. McMurray test.

Deep Tests

On Chestnut Ridge, the test of the Greensboro Gas Co. on the J. R. Thompson farm in Wharton Township, Fayette County, is drilling at 5,225 feet with exceptional time being made. West of this test in North Union Township, Wasson & Co. reached 2,400 feet and is preparing to lower the string of 10-inch.

In Springhill Township, Fayette County, on the southern end of this Chestnut Ridge closure, the L. J. Houze Convex Glass Co. cased to 1,330 feet and is now drilling at 1,600 feet on the Paul Dunham test.

In Westmoreland County, the Peoples Natural Gas Co. was drilling at 5,035 feet in the rotary test on the John S. Marshall farm, in Penn Township, on Grapeville anticline.

In Allegheny County, the South Penn Oil Co. and others are drilling with rotary at 3,400 feet on the Fred Backhaus farm on the Kellersburg anticline in West Deer Township.

North and East Texas

By MITCHELL TUCKER

Dry Holes Cut Off Panther Pool on the South and West

WICHITA FALLS, Tex., May 9.—The new, rapidly developing, Panther area in north central Archer County received several set-backs last week which greatly reduce the previously estimated large area of the field. However it did receive a northwestern extension when the third well in the area was assured last week. Three-fourths of a mile northwest of the discovery well, Thurman & Lipscomb No. 1 Wilson, Lot 1, Block 22, A.T.N.C.L. Survey, made several heads of oil while tubing was being run for production test. The actual potentiality of this well should do much to encourage development on the northwest side of the field.

Definite limitations were placed on the south side of the pool when Martin & Son No. 1 Wilson, Lot 9, Block 25, A.T.N.C.L. Survey, a half mile west of the discovery well, was abandoned as dry at a total depth of 4,051 feet. Several showings were logged while drilling, but none yielded profitable production.

Abandonment was also seen for Snoddy and others No. 1 Jones-Cullum, T. Freeman Survey, 2½ miles west of the discovery well, after water, with a little oil showing broke through when the well was shot from 4,056-85 feet. Total depth is 4,500 feet.

Producing ability of the Blackwell Oil & Gas Co. and Helmerich & Payne No. 2 Wilson, 1,000 feet southeast of the same operators' discovery well, is still unknown as preparations were made to drill deeper at the close of the week. This prospective Ellenburger well failed to make a producer last week as operators circulated, swabbed and attempted to force flow under pressure.

Mazada & Art No. 1 Finley, in the Abner Nails Survey, Abstract 325, 1 mile north of the discovery well was abandoned at total depth of 3,994 feet. The well may be deepened should Ellenburger production later be proven in the area.

K.M.A. Field Proper

A north outpost was given the K.M.A. pool when Perkins & Collum decided to deepen No. 17-A Bennett, section 2, T.&N.O. Survey, Abstract 506, Wichita County. This is an old well which failed to find shallow production after being drilled to 2,000 feet.

Indicating two weeks ago a 2½-mile extension on the west side of the pool, Clark & Cowden No. 1 Waggoner, A. Gibson Survey, Abstract 455, was abandoned at 3,840 feet a second time last week after shots in the K.M.A. lime section failed to make it a producer.

Wilbarger County

Wilbarger County was given a new oil pool and a new producing horizon with the completion of the Phillips Petroleum Co. and King Oil Co. No. 1 W. T. Way, section 63, Block 14, H.&T.C. Survey, about 8 miles southeast of Vernon. The wildcat found sand at 2,896-2,901 feet and flowed 176 bbls. of oil in 24 hours on initial gauge. The new discovery is about 2½ miles northeast of the South Vernon pool, producing from three shallower horizons.

EASTERN TEXAS FIELDS

DALLAS, Tex., May 9.—The East Texas oil field will have 25,000 producing wells in the next few days for there are now 24,989 producing oil wells in the field and 66 off production. The 25,000-well drilling mark for the area was passed several weeks ago. The average pressure drop during the March-April reporting period was 4.98 pounds despite the Sunday shutdowns. Engineers feel it may assume alarming proportions unless salt water production is curtailed. This problem is due to receive full consideration at the monthly proration meeting called for May 17 in Austin.

New Deep Record

A new record was set last week for the deepest test ever drilled in the eastern half of the state of Texas. The Humble Oil & Refining Co. and Gulf Oil Corp. No. 1 E. Robertson, M. Mann Survey, 2 miles southwest of Longview and on the east flank of the East Texas field in Gregg County, passed the 10,000-foot mark and was drilling at the close of the week below 10,002 feet in a hard sand of the Lower Marine Trinity series. While the test has had but slight showings of oil at any time it has uncovered a large gas reserve and opinion prevailed that it could be completed for a commercial gas-distillate producer. The previous deep test record was held by Tide Water-Seaboard No. 7 Monning in the Long Lake field in Anderson County, which was bottomed at 9,971 feet.

Another deep exploratory test centering much attention is Tom Hunter and American Liberty Oil Co. No. 1 J. P. Carter, in the J. H. Fields Survey, 1 mile north of Kelsey in Upshur County. The well was drilling below 8,825 feet in hard sand.

In Smith County, H. L. Hunt and others No. 1 S. H. Bradley, T. P. Payne Survey, 10 miles east of Tyler and 1 mile south of Chapel Hill, was coring below 7,420 feet with some shows of oil and gas encountered from 7,333-59 feet.

Flag Lake Outpost

The new Flag Lake pool of northwestern Henderson County received a wildcat outpost when Texas Co. started drilling No. 1 I. A. Nolan, in the Parsons Survey, about 1 mile southwest of production.

Four miles north of the Flag Lake field, Smith & Tyler No. 1 Perry, Adams Survey, was moving in rig for an exploratory test to the Woodbine and possibly to the basal Glen Rose of the Trinity series.

Lamar County Active

Lamar County was given a new drilling program as three new tests were indicated for the central part of the county. Dahl Brothers and E. G. Britzin intend to drill three tests. Their first, No. 1 Lewis & McCuistion is located 1 mile north of Paris and was drilling below 466 feet in the Eagleford shale. The operators' other locations have not as yet been announced.

EAST TEXAS FIELD COMPLETIONS

(One-hour gauges)

Gregg County—Longview Area

W. T. Carr No. 1 G. W. Richey, 3,559-74 feet, 70 bbls. Humble Oil & Refining Co. No. 20 Hughes, 3,591-3,687 feet, 53 bbls. J. Long Drilling Co. No. 17-A W. W. Owens, 3,616-21 feet, 51 bbls. W. L. McCurdy & Carr No. 6 G. W. Richey, 3,525-54 feet, 120 bbls. McMillian & McMurrey No. 4 J. R. Fenton, 3,586-3,604 feet, 60 bbls. Reserve Development Co. No. 5 J. M. Tuttle, 3,593-3,610 feet, 84 bbls. Stanolind Oil & Gas Co. No. 15 Albright, 3,534-3,633 feet, 53 bbls.; No. 10 E. and F. Jones, 3,551-3,649 feet, 60 bbls.

Gregg County—Kilgore Area

A. F. Anding No. 2-B L. P. Griffin, 3,535-37 feet, 74 bbls. J. E. Fleming No. 3 M. E. Church, 3,527-51 feet, 3 bbls. in 24 hours. F. A. Fuller No. 4-A Richards, 3,515-42 feet, 5 bbls. Gulf Oil Corp. No. 34 Alexander, 3,539-55 feet, 50 bbls. Hamil & Smith No. 5 M. Culp, 3,538-44 feet, 40 bbls. T. D. Humphreys No. 19 Spears, 3,550-72 feet, 50 bbls. T. W. Lee No. 6-A J. R. Carter, 3,592-93 feet, 30 bbls. J. W. Lutter No. 2-B B. Greer, 3,630-43 feet, 5 bbls. Nioco Oil No. 5 J. A. Knowles, 3,547-62 feet, 40 bbls. Shell Petroleum Corp. No. 18 P. M. Bates, 3,542-3,627 feet, 58 bbls.; No. 19 P. M. Bates, 3,544-3,646 feet, 62 bbls.; No. 20-A Douglas, 3,602-04 feet, 37 bbls.; No. 31-A B. F. Laird, 3,589-3,668 feet, 60 bbls. Ulmer & Liningston No. 2-B A. L. Still, 3,485-3,510 feet, 6 bbls.

Rusk County—Kilgore Area

Geier Bros. No. 11 Williamson, 3,708-09 feet, 40 bbls. Selby No. 8 D. Wills, 3,661-64 feet, 45 bbls. L. L. Suger No. 5 T. H. Gill, 3,619-19½ feet, 30 bbls.

Rusk County—Joiner Area

Despot & Adams No. 4 Deason, 3,627-76 feet, 80 bbls. Gulf Oil Corp. No. 11-A Keeling, 3,772-82 feet, 40 bbls. Humble Oil & Refining Co. No. 69-A M. and R. Kangerga, 3,686-3,756 feet, 65 bbls.; No. 39 J. W. Turner, 3,656-3,700 feet, 62 bbls. Stanolind Oil & Gas Co. No. 33-A H. C. Maxwell, 3,735-89 feet, 46 bbls Ward Oil No. 45 E. S. Thrash, 3,769-95 feet, 56 bbls.

Upshur County

Humble Oil & Refining Co. No. 42 J. K. Edwards, 3,632-92 feet, 60 bbls. Sabinas Oil No. 5-B T. M Collins, 3,691-96 feet, 60 bbls.

Smith County

W. B. Hamilton No. 19 Gambrell, 3,656-57 feet, 60 bbls. Fred S. Markham No. 8 S. S. Cook, 3,735-40 feet, 60 bbls.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour gauges)

Anderson County

F. H. E. Oil Co. No. 1 Morrow-Buffington, 5,342-48 feet, 92 bbls.

Angelina County

J. C. Bonham No. 3 Cameron Lumber Co., dry and abandoned at total depth of 621 feet; No. 4 Cameron Lumber Co., dry and abandoned; No. 5 Cameron Lumber Co., dry and abandoned.

Houston County

G. C. Dixon No. 1 L. Sanders, dry and abandoned at total depth of 1,661 feet.

Leon County

C. A. Brooke No. 1 G. W. Burkitt, abandoned location.

Navarro County

G. W. Gibson No. 1 J. H. Edgar, dry and abandoned at total depth of 2,200 feet; No. 3 J. H. Edgar, 48 bbls.

Smith County

Humble Oil & Refining Co. No. 1 Crone, dry and abandoned at total depth of 5,548 feet.

Titus County

C. O. Byrd No. 2 H. E. Wilson, 4,220-70 feet, 175 bbls. Humble Oil & Refining Co. No. 6 Pat Davis, 4,245-74 feet, 157 bbls.

Trinity County

Bilinoski No. 1 Trinity State Bank, dry and abandoned at total depth of 3,791 feet.

NORTH TEXAS COMPLETIONS

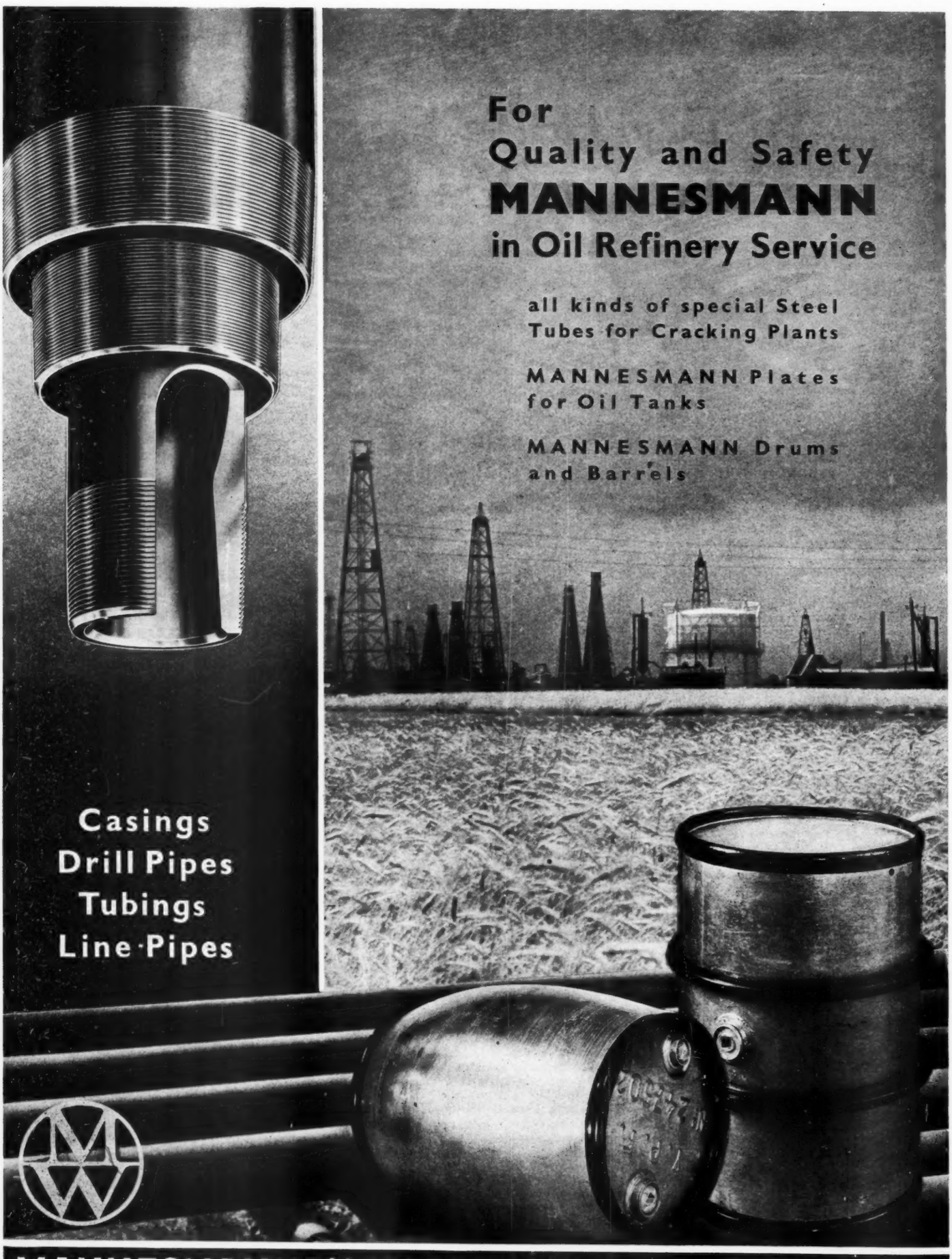
Archer County

Brown & Kriss No. 9 G. R. Campbell, 1,223-31 feet, 15 bbls. Chapman & McFarlin No. 4 W. P. Ferguson, 3,826-84 feet, 1,280 bbls. J. L. Randel No. 2 G. A. Lauster, 1,252 feet, dry. H. A. Schaeffer Oil Co. No. 2 W. P. Ferguson, 3,817-82 feet, 700 bbls.

Clay County

Bridwell Oil Co. No. 10 T. C. Thornberry, 1,067-1,106

(Continued on Page 340)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Rocky Mountain Area

By
T. R. INGRAM

Nebraska Test Hits Granite; Winter-bound Wells Resume

DENVER, Colo., May 9.—There were three completions, one a dry hole, in the Osage field in Wyoming; two completions in the Kevin-Sunburst field in Montana; a dry hole in McKinley County, New Mexico; and a 75-bbl. completion on the Rattlesnake dome, northwestern New Mexico.

The Stanolind Oil & Gas Co.'s Beaver Creek test, Fremont County, Wyoming, had water in the basal Sundance at 8,920 feet, total depth, and will complete in the Morrison as a gas well. Helmerich & Payne's test in the North Platte district, Nebraska, had the granite at 3,827 feet. Five Colorado wildcats shut down for the winter were resuming this week. Two new operations were reported in Wyoming and two in Montana.

NEW MEXICO

Four producers were completed in the Vacuum area in Lea County and the Maljamar district of northeastern Eddy County contributed two new producers the past week. Other New Mexico completions included two Lea County oil wells and an Eddy County wildcat failure.

Shell Petroleum Corp. No. 2-A State, C SW NE section 31-17-35, was the largest of the new Vacuum producers, flowing 185 bbls. of oil naturally in four hours through 2-inch tubing. It is on the east edge of production. Top of pay was found at 4,315 feet, total depth 4,667 feet. Gas gauged 1,000,000 feet.

Phillips Petroleum Co. No. 2 Santa Fe, C SW SE section 30-17-35, also on the east edge, swabbed 140 bbls. of oil daily from pay found at 4,575 feet, total depth 4,685 feet. It was acidized.

Magnolia Petroleum Co. No. 4 State-Bridges, C NW NE section 26-17-34, was acidized and shot and flowed 75 bbls. of oil in 15½ hours. It was bottomed at 4,768 feet, with pay topped at 4,475 feet.

Same company's No. 5 State-Bridges, C NE NW section 26-17-34, west offset to No. 4 State-Bridges, had initial production of 130 bbls. of oil daily after acidizing and shooting. Pay was found at 4,465 feet, total depth 4,750 feet.

Ohio Oil Co. No. 10 State-McDonald, C NE SW section 16-22-36, South Eunice field, had pay at 3,755 feet, was bottomed at 3,850 feet, and flowed through tubing at the rate of 40 bbls. an hour, or 960 bbls. daily.

In the Langlie district, Amerada Petroleum Corp. No. 1 Stuart, NE SW NE section 22-25-37, flowed 226 bbls. of oil in eight hours from pay topped at 3,304 feet, total depth 3,345 feet.

Larger of the two Eddy County completions was Emperor Oil Co. No. 5 Puckett, C SW NE section 24-17-31, extreme east side of the Maljamar district and near the Lea County line. It flowed 135 bbls. of oil daily through tubing from pay topped at 3,678 feet, total depth 3,915 feet.

Same operator's No. 4 Puckett, C NE NE section 24-17-31, northeast offset to No. 5 Puckett, pumped 85 bbls. of oil daily from pay found at 3,712 feet, total depth 3,982 feet. Both wells were acidized.

Pecos Valley Gas Co. No. 1 Sappenfield, C SE SE section 4-16-28, wildcat north of the Artesia area and near the Chaves County line, had a slight showing of oil and gas but was dry and abandoned at 2,601 feet, total depth.

Lea County

Addison Oil Co. No. 2 Knight, C SW NW sec. 27-24-37. Drlg. 120 ft.

Amerada Pet. Corp. No. 3 Laughlin, C NW NE sec. 9-20-37. T.D. 2,855 ft.; set 8-in. 2,573 ft.

Amerada Pet. Corp. No. 2 State VA, C NW SW sec. 23-17-34. Drlg. 1,700 ft.

Amerada Pet. Corp. No. 2 James Stuart, C W½ SW NW sec. 14-25-37. T.D. 226 ft.; W.O.C.

Anderson-Prichard Oil Corp. No. 2 Langlie, SE sec. 8-25-37. Drlg. 3,420 ft.

Anderson-Prichard Oil Corp. No. 4 Langlie, NE SW NE sec. 8-25-37. Drlg. 3,345 ft.

Anderson-Prichard Oil Corp. No. 1 Wells, C SE SE sec. 5-27-37. Drlg. 3,610 ft.

Anderson-Prichard Oil Corp. No. 2 Wells, C SW SE sec. 5-27-37. Loc.

Atlantic Ref. Co. No. 1 State, C SE SW sec. 32-24-37. Spdg.

Cities Service Oil Co. No. 3-A Closson-A, C NE SE sec. 18-22-36. Drlg. 3,567 ft.

Cities Service Oil Co. No. 1-H State, C NE NE sec. 17-22-36. T.D. 3,884 ft.; prep. to deepen.

Continental Oil Co. No. 2-F-1 State, C SW NE sec. 1-21-36. Drlg. 2,360 ft.

Continental Oil Co. No. 1-J-2 State, C NW NE sec. 2-22-36. Drlg. 2,245 ft.

Continental Oil Co. No. 1-B-15 Britt, C W½ NW NW sec. 15-20-37. T.D. 3,652 ft.; rng. csg.

Continental Oil Co. No. 2-A-20 Jack, C SE SE sec. 20-24-37. T.D. 3,235 ft.; drlg. plug.

Continental Oil Co. No. 3 Jack, C SE NE sec. 20-24-37. Cellar, pits.

Continental Oil Co. No. 1-A-31 Marsh, SE sec. 31-20-39. Wildcat; T.D. 4,346 ft.; C.O.; swb. 11 B.O. in 14 hrs.

Continental Oil Co. No. 4 Reed B-23, C E½ NW NE sec. 23-20-36. T.D. 3,877 ft.; tstg.

Continental Oil Co. No. 5 Reed, C W½ NE SE sec. 23-20-36. T.D. 385 ft.; S.D.R.

Continental Oil Co. No. 2 Sanderson, NE NE SW sec. 14-20-36. Loc.

Continental Oil Co. No. 9 Sanderson, NE SE NW sec. 14-20-36. C.&P.

Continental Oil Co. No. 4-E-17 State, C SW NW sec. 17-22-36. Drlg. 3,490 ft.

Continental Oil Co. No. 1-F-1 State, C SW SW sec. 1-21-36. T.D. 3,935 ft.; P.B. 3,838 ft.; 396,000 ft. gas; S.I.

Continental Oil Co. No. 1-I-16 State, C NW NW sec. 16-18-35. Drlg. 4,531 ft.

Cranfill & Germany No. 1 Weir, C NE NE sec. 15-20-37. T.D. 4,210 ft.; S.D.O.

Culbertson & Irwin No. 4 Alston, SW SE NW sec. 26-25-37. T.D. 1,106 ft.

Culbertson & Irwin No. 1 Dabbs, NE NE NW sec. 35-25-37. Drlg. 300 ft.

Culbertson & Irwin No. 6-A Humphrey, NE SW SE sec. 3-25-37. Drlg. 3,125 ft.

Culbertson & Irwin No. 2 Liberty Royal, C N½ SW NW sec. 3-25-37. Drlg. 2,865 ft.

Danglade & Clower No. 1 Glier, C SW NE sec. 32-22-37. T.D. 3,680 ft.; C.O.; flwd. 105 B.O. in 48 hrs. through csg.; tstg.

L. E. Elliott No. 2 Elliott, NE NW SE sec. 26-20-36. Drlg. 3,570 ft.

A. R. Eppenauer No. 1 Stuart, NW NE NE sec. 22-25-37. T.D. 3,373 ft.; flwd. 15 B.O.P.H. at 3,321 ft.

J. E. Farrell No. 2-C Walden, C SE SW sec. 15-22-37. Drlg. 3,700 ft.

Great Western Prod. Co. No. 1-C State, C NE SW sec. 7-19-37. Drk.

Gulf Oil Corp. No. 1 Alley, C NE SE sec. 10-23-37. T.D. 3,713 ft.; P.B. 3,686 ft.; S.I.O.

Gulf Oil Corp. No. 8-F Bell, C NW NW sec. 36-20-36. T.D. 1,215 ft.

Gulf Oil Corp. No. 1 Boyd, sec. 23-22-37. T.D. 3,681 ft.; tstg.

Gulf Oil Corp. No. 4 Day, C E½ SW NW sec. 6-22s-36. C.&P.

Gulf Oil Corp. No. 2-D Kutter, C SE SW sec. 8-19-37. T.D. 4,155 ft.; P.B. 4,100 ft.; S.D.O.

Gulf Oil Corp. No. 4-C Kutter, C SW NW sec. 18-19-37. Drlg. 3,905 ft.

Gulf Oil Corp. No. 2 Ramsey, C SW SW sec. 27-21-36. Shot; C.O. at 3,848 ft.

Humble O. & R. Co. No. 5 Fopeano, C E½ SW SE sec. 26-20-36. Drlg. 3,640 ft.

Humble O. & R. Co. No. 3-H State, C NW NW sec. 34-22-37. Drk.

Humble O. & R. Co. No. 3 Williams, C SW NW sec. 34-24-37. T.D. 3,532 ft.

Jal Nat. Gas Corp. No. 2 Justis, NE sec. 20-25-37. T.D. 3,029 ft.; tstg.

Carl B. King No. 1-A Stuart, NW NE NW sec. 14-25-37. T.D. 3,395 ft.; tstg.

Magnolia Pet. Co. No. 1 Brunson-Argo, C NW NE sec. 9-22-37. Drlg. 3,487 ft.

Magnolia Pet. Co. No. 1 State G, NW NW NE sec. 34-17-34. T.D. 4,905 ft.; P.B. 4,794 ft.

Magnolia Pet. Co. No. 2-K State, C NE SE sec. 31-17-35. Drlg. 4,198 ft.; S.O.

Magnolia Pet. Co. No. 2 State-Bridges, sec. 14-17-34. T.D. 4,593 ft.; flwd. 51 B.O. in 1 hr. naturally.

Magnolia Pet. Co. No. 3 State-Bridges, C NE NW sec. 26-17-34. Drlg. 2,220 ft.

Magnolia Pet. Co. No. 6 State-Bridges, C SW NW sec. 23-17-34. Drlg. 4,085 ft.

Magnolia Pet. Co. No. 7 State-Bridges, C SW NE sec. 23-17-34. Cellar, pits.

Magnolia Pet. Co. No. 8 State-Bridges, C NW SE sec. 23-14-34. Drlg. 1,205 ft.

Maljamar O. & G. Co. No. 9 Baish, C NW NW sec. 21-17-32. Drlg. 1,855 ft.

Maljamar O. & G. Co. No. 4 Mitchell, C NE NE sec. 20-17-32. R.U.R.

Maljamar O. & G. Co. No. 5 Mitchell, C NW NW sec. 19-17-32. R.U.M.

Jas. A. Mascho No. 2 Cloyd, C SW SW sec. 20-22-33. Loc.

C. T. McLaughlin No. 1 Polhamus, NE sec. 9-24-37. T.D. 3,672 ft.; S.D.O.

National Drlg. & Prod. Co. No. 1 Flint, C NE NE sec. 29-20-34. Wildcat; drlg. 3,710 ft.

Ohio Oil Co. No. 1 Kutter D, C SW SW sec. 18-19-37 Drlg. 3,625 ft.

Ohio Oil Co. No. 1 State-Fleming, NE cor. sec. 2-26-37. T.D. 325 ft.

Ohio Oil Co. No. 7 State-McDonald, C SW SE sec. 16-22-36. T.D. 3,871 ft.; C.O.

Ohio Oil Co. No. 2 State-Warn, C NE SW sec. 31-17-35. Drlg. 3,205 ft.

Parker Drlg. Co. No. 2 Irwin, C W½ NW SW sec. 35-24s-37. R.U.S.T.

Paton Bros. No. 2 Wilkinson, C SE SE sec. 8-18-31. Loc.

Lem Peters No. 1 L. J. May, C NW SE sec. 27-22-37. Drlg. 2,385 ft.

Lem Peters No. 1 T. O. May, C NW NE sec. 34-22s-37. T.D. 975 ft.

Phillips Pet. Co. No. 3 Santa Fe, C SW NW sec. 5-18-35. Rig.

Phillips Pet. Co. No. 4 Santa Fe, C SW SE sec. 31-17-35. T.D. 269 ft.; rng.

Phillips Pet. Co. No. 5 Santa Fe, C NW SW sec. 31-17-35. T.D. 269 ft.; W.O.C.

Phillips Pet. Co. No. 6 Santa Fe, C SW SE sec. 21-17-35. T.D. 382 ft.; S.D.W.

Plains Prod. Co. No. 1 Humphreys, NE sec. 3-25-37. Loc.

Repollo Oil Co. No. 2 Hair, NW SW NW sec. 9-24-37. T.D. 235 ft.

Repollo Oil Co. No. 1 State, SE cor. sec. 6-17-34. Drlg. 4,080 ft.

Repollo Oil Co. No. 2-B State, NE SE NW sec. 7-22-36. Drlg. 3,683 ft.; S.G.

Repollo Oil Co. No. 4-B Whitten, NE NE SE sec. 4-24-36. Drlg. 3,120 ft.

Rowan & Nichols No. 1 State, C NE NW sec. 22-10-37. Drk.

J. M. Rush No. 2 Wantz, C NW SW sec. 21-21-37. Cellar, pits.

Harry J. Schafer No. 1-A State, C E½ NW NE sec. 26-20-36. Drlg. 3,843 ft.; cmtg.

Shasta Oil Co. No. 2 Woolworth, NE NW NW sec. 28-24-37. T.D. 3,020 ft.; S.D.R.

Shell Pet. Corp. No. 4-E State, C SW NW sec. 12-20-36. Drlg. 3,800 ft.

Skelly Oil Co. No. 5 J. B. Baker, C SE NW sec. 27-22-37. T.D. 3,620 ft.; tstg.

Skelly Oil Co. No. 3 G. W. Sims, C NW NE sec. 9-23-37. T.D. 3,642 ft.; C.O.

Skelly Oil Co. No. 1-C R. R. Sims, sec. 3-23-37. Drlg. 3,688 ft.

Skelly Oil Co. No. 1-E W. P. Sims, C NW NE sec. 10-23-37. T.D. 3,625 ft.; flwd. 452 bbls. in 24 hrs.

Skelly Oil Co. No. 1-L State, C SW NW sec. 2-25-37. Drlg. 765 ft.

Southern Pet. Explo. Co. No. 2 Downes, C SW SW sec. 32-21-27. Drlg. 3,472 ft.

Stanolind O. & G. Co. No. 2-A Hill, C NE SE sec. 6-21-37. Drlg. 3,458 ft.

Stanolind O. & G. Co. No. 5-B Myers, C NE SW sec. 9-24-37. T.D. 1,210 ft.

W. H. Street No. 4 Woods, C NE NE sec. 22-22-37. Drlg. 3,285 ft.

W. H. Street No. 2 Farrell, C NW SE sec. 22-22s-37. R.U. spudder.

Texas Co. No. 3 Black, C NW NE sec. 21-24-37. Drlg. 1,355 ft.

Texas Co. No. 2 Cagle, SE NE NE sec. 9-26s-37. Loc.

Texas Co. No. 1 Corbin, C NW SW sec. 19-18-33. T.D. 5,118 ft.; P.B. 5,112 ft.; W.O. new tools.

Texas Co. No. 4 Fristoe, NW NE SE sec. 3-25-37. Drlg. 2,420 ft.

Texas Co. No. 1-N State, C SW SW sec. 30-17-35. T.D. 4,850 ft; P.B. 4,780 ft.; W.O.C.

Texas Co. No. 2-O State, C SE NE sec. 36-17-34. T.D. 4,110 ft.; cmtg.

Texas Co. No. 3-O State, C SW NE sec. 36-17-34. T.D. 275 ft.

Texas Co. No. 1-P State, C NW SE sec. 7-18-35. T.D. 3,800 ft.; P.B. 3,100 ft. to straighten hole.

Texas Co. No. 1-Q State, C SE SE sec. 25-17-34. Loc.

Texas Co. No. 2-Q State, C SW SE sec. 25-17-34. Loc.

Texas Pacific C. & O. Co. No. 11-A State, Acct. 2, C SE NE sec. 7-22-36. T.D. 3,754 ft.; rng. csg.

Texas Pacific C. & O. Co. No. 12-A State, C NE SE sec. 7-22-36. Drlg. 1,300 ft.

Twin Drlg. Co. No. 1 Corrigan, C NW NE sec. 4-22-37. Loc.

Twin Drlg. Co. No. 1 State, C SE NW sec. 32-21-37. Loc.

Weier Drlg. Co. et al No. 1 Woolworth, NE NE SW sec. 28-24-47. R.U.S.T.

Sam Weiner No. 1 Smith, NE cor. sec. 4-25-37. T.D. 2,885 ft.; fsg.; S.O.&G.

Weiner No. 1 Parcell, C SW NE sec. 8-23-28. Drlg. 1,265 ft.

Western Gas Co. No. 1 Curry, C SE SE sec. 1-24-36. T.D. 3,496 ft.; to test.

Western Gas Co. No. 1 Matkins, C SE SE sec. 15-23-36. T.D. 3,665 ft.; P.B. 3,658 ft.; tested 32,000 ft. of gas.

Eddy County

F. E. Baker No. 1 Eddy, NE sec. 12-22-37. T.D. 2,024 ft.; S.D.R.

Barnett Oil Dev. Co. No. 1 King Permit, C NW SE sec. 23-26-30. T.D. 980 ft.; S.D.

Carper Drlg. Co. No. 3 Gissler, C E½ E½ NW sec. 23-17-30. T.D. 3,425 ft.; swb. 70 B.O.P.D.; rng. csg.

Danciger O. & R. Co. No. 4-A Turner, C SW SW sec. 18-17-31. Drlg. 3,300 ft.; S.O.&G.

Danciger O. & R. Co. No. 1-B Turner, CEL NE SE sec. 17-17-31. Loc.

D. & B. Oil Co. No. 3 Jenkins, NE NE NW sec. 20-17-30. Drlg. 2,240 ft.

Etz Bros. No. 5 State, SE NE SE sec. 16-17-30. Loc.

Finley & Cherry No. 1 Buchley, C NW NW sec. 28-16-31. Wildcat; T.D. 3,750 ft.; S.D.

Flint Prod. Co. No. 1-B State, SE sec. 20-17-30. Drlg. 3,830 ft.

C. J. Frederick No. 1 Reed, C NE SW sec. 28-24-28. Drlg. 2,554 ft.; S.O.

F. W. & Y. Oil Co. No. 8-A Gissler, NE NW NE sec. 23-17-30. T.D. 3,237 ft.; drlg. by lost tools.
F. W. & Y. Co. No. 9-A Gissler, C SE NE sec. 14-17-30. T.D. 3,500 ft.; swb. 30 B.O.P.D.; to shoot
F. W. & Y. Oil Co. No. 3 Jackson, C NW SE sec. 13-17-30. T.D. 2,953 ft.; fsg.
Grayburg Oil Co. No. 4 Keely, SE SW NE sec. 24-17-9. T.D. 3,588 ft.; to test.
H. A. Hartwell No. 1 Vandagrift, NE NE SE sec. 8-18-27. T.D. 2,000 ft.; S.D.O.
R. L. Holcomb No. 1 State, NW sec. 22-17-28. T.D. 1,980 ft.; S.D.O.
C. F. Ingram No. 1 Page, NE NE SW sec. 15-21-28. T.D. 1,495 ft.; S.D. for new rig.
B. M. Koehane et al No. 1 Shannon, SE cor. sec. 27-16-31. Drlg. 4,260 ft.; S.S.O.
Paul Moran No. 1 Crawford & Smith, NW NW SW sec. 24-24-36. Drlg. 1,625 ft.
Murchison & Closuit No. 1 Foster, SE NE SE sec. 17-17-31. Drlg. 3,461 ft.; S.O.&G.
Murchison & Closuit No. 2-A State, NW SE SW sec. 16-17-31. T.D. 3,585 ft.; acidized; S.O.&G.; tstg.
Paton Bros. No. 2 Ginsberg, C SE SE sec. 8-18-31. Drlg. 1,380 ft.
Premier Pet. Co. No. 1 Beeson, NE SE SE sec. 28-17-30. T.D. 3,250 ft.; 2,000 ft. O.I.H.; W.O.C.
Red Gulch Oil Co. No. 2 Keyes, C SW SE sec. 4-17-28. T.D. 1,231 ft.; cmtg.
Repollo Oil Co. No. 3-A Keel, SW SE SW sec. 7-17-31, Drlg. 1,480 ft.
Repollo Oil Co. No. 2-C McIntyre, NE cor. sec. 20-17-30. Drlg. 3,226 ft.; 2,500 ft. O.I.H.
Repollo Oil Co. No. 2-A Parke, NW NW NE sec. 22-17-30. T.D. 3,439 ft.; F. 60 B.O.P.D.; tstg.
Repollo Oil Co. No. 3-A Parke, NW cor. sec. 22-17-30. Drlg. 1,520 ft.
W. K. Royalty Co. No. 2 State, C NW NE sec. 16-17-31. T.D. 3,661 ft.; S.O&.G.; tstg.
Paul Sarget No. 1 State, NE sec. 16-17-31. T.D. 3,749 ft.; P.B. 3,745 ft.; tstg.
R. A. Shugart No. 1 Coulthard, C NW SW sec. 35-18-31. C.O. 3,500 ft.; F. 85 B.O.P.D.; tstg.
W. O. Snyder No. 1 Pecos Irrigation, C NE SE sec. 15-25-28. T.D. 3,330 ft.; S.D.O.
Nell H. Wills et al No. 3-A State, NE SE SW sec. 20-20-30. Drlg. 700 ft.
Western Drlg. Co. No. 1-A Western, SE SW NW sec. 23-17-29. Drlg. 2,530 ft.

Chaves County

E. J. Fisher No. 1 Etz Permit, NE sec. 23-7s-26. T.D. 1,610 ft.; plg. csg.
Grastorf & Caudill No. 1 Smith, C NE NE sec. 1-4s-29. Wildcat; new hole; T.D. 1,580 ft.; reaming at 700 ft.
Interstate Minerals, Inc., No. 1 Dunigan, NW cor. sec. 15-15-30. C.&P.
J. & L. Drlg. Co. No. 2 Hurd, SW sec. 11-11-28. T.D. 1,000 ft.; fsg.

De Baca County

Land Owners Oil Co. No. 1 McAdoo, SW cor. sec. 16-1s-7e. O.W.: prep. to deepen from 5,850 ft.; S.D.
James D. Ward No. 1 Summers, NW NE SW sec. 17-4n-20. T.D. 260 ft.; S.D.
N. F. Woods No. 1 Jones, C NE SW sec. 17-4n-20. T.D. 25 ft.; S.D.

Dona Ana County

Jules C. Bertrand No. 1 Casad Permit, sec. 24-26-5e. T.D. 47 ft.; S.D.O.

McKinley County

S. Dysart No. 1 Govt., NE sec. 14-14-10w. T.D. 1,390 ft.; fsg.

Otero County

Fred Turner, Jr., No. 1 Ella Everett, C SE SE sec. 34-22-13. Drlg. 3,030 ft.
Fred Turner, Jr., No. 1 H. V. Everett, SE SE sec. 28-22-13. Drlg. 1,700 ft.

Roosevelt County

C. S. Peterson and Conquistadores Oil Co. No. 1 Good, NW SE SE sec. 28-5s-30. T.D. 720 ft.; R.U.S.T.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc., No. 2 North Albuquerque, NE SE NW sec. 19-11n-4e. T.D. 3,750 ft.; M.I. 6⅝-in. and 3-in. D.P. to resume.

McKinley County

Forth & Hickerson No. 1 McKinley, NE NW NE section 29-20n-9w, in the Bonda district, was abandoned in sand at 460 feet.

San Juan County

The Continental Oil Co. No. 74 Rattlesnake, CEL SE section 2-29n-19w, Rattlesnake pool, was completed for 95 bbls. per day in the third Dakota sand at 903 feet, total depth.

Continental Oil Co. No. 75 Rattlesnake, E quar. cor. sec. 2-29-19w. M.I.M. (first report).
Al Greer No. 2 fee, SW SE SW sec. 10-30n-11w. Drlg. 120 ft.; 12¼-in. at 110 ft.; test to Picture Cliff in Aztec-Bloomfield dis. (first report).
Frank Lischke No. 1 Abreo, SW SW sec. 27-30n-11w. Fsg. tools at 520 ft.
Anna Oil Corp. No. 6 Govt., SW NE NE sec. 33-30n-11w. Drlg. 1,900 ft.

COLORADO

Cheyenne County

Gulf Oil Corp. No. 1 Union Pacific-Larsen, C SE NW sec. 13-13s-49w. Drlg. 5,747 ft. in Mississippi L.; top 5,716 ft.; crd. 5,723-33 ft.; no shows.

Fremont County

Isadore Spangler No. 1 St. Marys, SE cor. sec. 2-19s-70w. Deepened to 2,040 ft.; blg. 75 B.P.D.
Stanley Thomas No. 1 Rickwait, SE SE sec. 2-19s-70w. Cmtd. 10-in. at 50 ft.

Garfield County

The Roaring Fork Oil Co. No. 1 Patterson, C NE section 36-7s-88w, Roaring Fork Structure, which shut down last December at a total depth of 735 feet after cementing the 8¼-inch at 721 feet to dry up the hole, has resumed. A show of gas was encountered at this depth which it was intended to test after shutting off water as soon as weather conditions permitted. Cement job failed to hold and recementing is in progress.

Roaring Fork Oil Co. No. 1 Patterson, C NE sec. 36-7s-88w. Recmtg. 8¼-in. at 721 ft.

Grand County

Interstate Oil & Ref. Co. No. 1 Hinman, NE SE NW sec. 11-2n-81w. T.D. 3,830 ft.; rung. 4½-in.

Huerfano County

S. W. Pressey No. 2 Alamo, C SW SE sec. 3-27s-68w. Rng. 8¼-in. at 1,200 ft.

Mesa County

Continental Oil Co. et al No. 1 Miller, SW SW NW sec. 36-8s-91w. Drlg. sd. and sh. 1,000 ft.

Moffat County

The Morapas Petroleum Co. No. 1 Coles, a Sundance test between the Iles and Thornburg domes which was shut down for the winter at 2,685 feet, is preparing to resume. The 10¾-inch is at 1,781 feet, and will be carried through the Dakotas, if necessary. Cavey ground in the bentonite shale has been cemented off and drilled out except for plug at bottom. Hole is estimated about 115 feet off the Dakota.

Morapas Pet. Co. No. 1 Coles, SW SW SE sec. 1-3n-92w. T.D. 2,658 ft.; preparing to resume.

Park County

South Park Oil Co. No. 1 Lemar, NE NE SE sec. 34-11s-75w. T.D. 5,735 ft.; moving in fuel to resume.

Prowers County

Continental Oil Co. No. 1 Ruby, C NE NW sec. 31-21s-44w. R.U.R.

Pueblo County

C. E. Puckett No. 1 Barber, NW sec. 35-21s-66w. Drlg. 280 ft. in bl. sh.

Routt County

Craig & Moore No. 1 Erwin, C SW NE sec. 33-7n-85w. Drlg. 650 ft.

WYOMING

Carbon County

Ohio Oil Co. No. 3 Hazlett Est., NE SW SE sec. 34-23n-79w. Drlg. 1,395 ft. in sdy. sh.
Ohio Oil Co.-California Co. No. 3 State-Griffin, C SW NW sec. 36-21n-79w. Drlg. 3,021 ft.; top Shannon 1,925 ft.

Converse County

The New Era Fuel Co. No. 1 Boot Cattle, a wildcat to the west and north of the shallow drilling in the West Shawnee district, had 1,000,000 feet of gas in a 35-foot sand at 270-308 feet. Gas was followed by a show of oil and then water. It is making a shutoff.

New Era Fuel Co. No. 1 Boot Cattle, CSL SE SE sec. 1-31n-70w. Rng. 10-in. at 400 ft. for W.S.O.
E. B. Jones No. 1 O'Meara-Govt., NW SE NE sec. 17-32n-69w. Spdg.
Wyshawn Oil Co. No. 1 Lindley, NW SE SE sec. 34-32n-69w. Drlg. 830 ft. in Tertiary r.b.

Crook County

Riverton Oil Co. No. 1, SE SE SE sec. 19-49n-66w. Drlg. 700 ft.

Fremont County

The Stanolind Oil & Gas Co. No. 1 Government (Johnson), C SE SE section 3-33n-96w, a deep test on the Beaver Creek structure, 16 miles west of Riverton, topped the Nuggett, or basal Sundance sand at 8,809 feet and drilled to 8,920 feet. The sand carried water with no shows of oil or gas. On the way down it showed for 5,000,000 feet of gas per day on a drill stem test in a sand in the Morrison at 8,248-86 feet. A 7-inch liner is being run into the 9⅝-inch cemented at 7,458 feet. The liner will be gun perforated opposite the gas sand and hole completed as a gas well.

Consolidated Oil Properties No. 3 Ewart, C SW SE sec. 16-1n-1w. Drlg. 800 ft.
Sinclair-Wyoming Oil Co. No. 2-B Muskrat, NW NW NE sec. 4-33-92w. Drlg. sh. 4,665 ft.
Stanolind O. & G. Co. No. 1 Govt., C SE SE sec. 3-33n-96w. T.D. 8,920 ft.; prep. to complete as gas w. at 8,286 ft.

Natrona County

Stanolind O. & G. Co. No. 8 T.P.-Midwest Oil, C NW SW sec. 35-40n-79w. Loc.; W.O. compl. No. 26.
Stanolind O. & G. Co. No. 26 T.P.-Wyo. Asso., C SE NW sec. 35-40n-79w. Drlg. 3,542 ft.
General Pet. Corp. No. 1 Govt., C NW SE sec. 21-35n-77w. Drlg. 7,958 ft.; sat. sd. (probably Muddy) at 7,920-26 ft.

Niobrara County

Continental Oil Co. No. 12 Tom Bell, C SE SE sec. 33-36n-65w. Drlg. 2,714 ft.
A. B. Cobb et al No. 3 Novick-Ong, SW SE SW sec. 6-35n-65w. Top basal Sundance at 4,090 ft.
MacKinnie Oil & Drlg. Co. No. 3 Thompson, NW NE NW sec. 7-35n-65w. Drlg. on bit at 5,210 ft.
Minnelusa Oil Co. No. 2 H. & M., NW NE NE sec. 8-35n-65w. S.D.O. 325 ft. after cmtg. 13⅜-in.
Continental Oil Co. No. 11 Tom Bell Cattle, SE SW SW sec. 27-36n-65w. Drlg. 5,113 ft.; top basal Sundance 4,065 ft.; Converse dry at 4,835-36 ft.
Hewitt Bros. and Manning No. 1 Pecklow, SE SE SE sec. 1-35n-66w. Drlg. 4,794 ft.
Ohio Oil Co. No. 10 Putnam, NW SE NW sec. 4-35n-65w. Cg. for Leo sd. at 5,362 ft.; red marker at 5,277 ft.
H. D. Moore et al No. 1 Beregren, NW sec. 23-35n-63w. Drlg. in Sundance 937 ft.; top Morrison 587 ft.

Sublet County

Major Oil Dev. Co. and Yellowstone Oil Co. No. 1 Henry Budd, C SE SE sec. 6-30n-112w. Spdg.; (shallow test).
Wyoming Pet. Corp. No. 1 Chas. Budd, C NE NE sec. 10-29n-113w. Spdg.; (deep test to 5,000 ft.).

Sweetwater County

Sinclair-Wyoming Co. No. 78, SW SW NW sec. 11-26n-90w. Drlg. r.b. 3,327 ft.
Selegna Oil Co. No. 1 Union Pacific, SW SW sec. 11-20n-104w. T.D. 4,200 ft.; fsg. D.P.

Weston County

The Osage field had three completions and one new operation. The Osage Trust Co. No. 29, NW SE SW section 14-46n-64w, made 35 bbls. per day on the pump from the Newcastle sand at 1,743-59 feet after a shot with 20 quarts. Charles F. Martens No. 9, NE SW NE section 23-46n-64w, made 15 bbls. per day on the pump from sand at 1,700-20 feet after a shot with 40 quarts. H. D. Wiltse No. 14, NW NW NE section 17-46n-63w, on the east side, was dry in sand at 360-380 feet.

Osage Trust Co. No. 30, NE NW SW sec. 14-46n-64w. Drlg. below 400 ft.
Chas. Stough No. 11, CSL SW NW sec. 4-46n-63w. Drlg. below 140 ft.
John Brorphy No. 1 George, SW SE NW sec. 26-48n-64w. T.D. 2,040 ft.; prep. to recmt. 6⅝-in.

MONTANA

Carbon County

R. C. Tarrant No. 1, 500 ft. W of C sec. 3-6s-18e. Drlg. 1,050 ft. in 12½-in. hole.
R. C. Tarrant No. 2 Heare, NW SE NW sec. 14-6s-19e. S.D. 1,780 ft.
Sha-Wa Pet Co. No. 1 Govt., SW SW NE sec. 35-9s-23e. T.D. 3,223 ft.; P.B. to 3,124 ft.; prep. to test sd. at 3,042-84 ft.
Miracle Oil Co. No. 2 Govt., CWL NE SE sec. 3-6s-23e. S.D. 2,381 ft.

Fergus County

Baughman & Singley No. 1 Skaggs, C NW SW sec. 7-15n-20e. S.D. 525 ft.

Glacier County

A. B. Cobb No. 1 Reagan-Jackson, SW SE NW sec. 5-32n-5w. R.U.
Nadeau Bros. No. 5 Farmers State Bank, CEL SE NE sec. 17-33n-5w. T.D. 2,400 ft.; fsg. tools.
Glacier Prod. Co. No. 2 Eisler, SW NE SW sec. 5-33n-5w. Drlg. 1,575 ft.
Santa Rita O. & G. Co. No. 1 Jordan, NW NW SE sec. 18-32n-5w. Cmtd. 7-in. at 2,737 ft.; W.O.C.
K. D. Pardee No. 1 Drumheller, NE NW (C Lot 3), sec. 2-33n-6w. T.D. 2,375 ft.; fsg. tools.
A. B. Cobb No. 1 State, C NE NE sec. 30-37n-4w. T.D. 2,592 ft.; S.D. until spring.

Toole County

The Kevin-Sunburst field had two completions and two new operations.

Casper T. Olen No. 7 Engemoen, C NW NW section 14-35n-2w, which was drilled to the pay at 1,607 feet last fall and shut down for the winter, was acidized with 1,000 gallons and is pumping 100 bbls. per day. It had the contact at 1,591 feet. It is in a district where wells with no better showings were abandoned before the days of acidization.

Agen & Goeddertz No. 11 Goeddertz, SW NE SW section 23-35n-3w, is pumping 20 bbls. per day, without acidizing, from the contact at 1,677-1,700 feet. It may be acidized later. It is an offset on the northeast to the same company's No. 10 Goeddertz, which was completed last fall and pumped 80 bbls. per day natural without acidizing. The two wells are in a district where there has been little drilling. The nearest producers are three-fourths of a mile to the south, half a mile to the east, and a mile on the northeast.

A. E. Crumley No. 11 Fryberger, C NW SE sec. 24-35n-3w. Spdg. 50 ft. (first report).
O. A. Nepstad No. 2 Haugen, NW NW NE sec. 11-35n-3w. Spdg. 75 ft. (first report).
Hamilton & Hamilton No. 4 Reeg, SE SW SE sec. 14-35n-2w. Drlg. 800 ft.
Boris A. S. Aronow No. 2 Govt., SW SE SW sec. 18-35n-2w. T.D. 1,445 ft.; rng. 7-in.
Fifty-six Pet. Co. No. 1 Keywood, C NW SW sec. 13-34n-4w. Drlg. 350 ft.
A. Beardslee No. 8 Swears, SE NW NW sec. 9-35n-2w. Drlg. 450 ft.
Big West Oil Co. No. 7 Gunderson, CEL SE NW sec. 19-35n-2w. Drlg. 1,540 ft.
Rimrock Oil Co. No. 4 Schmidt, CSL SW NW sec. 29-35n-3w. Drlg. 1,400 ft.
Pfabe & Engelking No. 2 Hurley, NE NE NW sec. 8-34n-2w. Loc.
Deloraine Oil Synd. No. 3 Solberg, SE SW NE sec. 29-35n-3w. S.D.O. 1,760 ft. in top contact; S.O.
H. C. Morton No. 8 Morton, C SW NW sec. 24-34-2w. S.D. 590 ft.
Chas. Grant et al No. 1 Anderson, SE NE NE sec. 26-35n-4w. S.D. 2,109 ft.
West Kevin Community Lease, Inc., No. 1 McClary, SW NE NW sec. 3-34n-4w. S.D.O. 2,000 ft.

NORTH DAKOTA

Williams County

California Co. No. 1 Kamp, C NW NE sec. 3-154n-96w. Drlg. 7,150 ft.

UTAH

Daggett County

Mountain Fuel Supply Co. No. 3-B Murphy, NW NW SW sec. 23-3n-24e. Drlg. 2,300 ft.

Grand County

Utah Southern Oil Co. No. 1 Hyde, SE NW NW sec. 33-22s-22e. T.D. 6,715 ft.

Columbia Crude Crop. No. 1 Rath, NW SW SE sec. 12-25s-20e. Drlg. 3,800 ft.
Cane Creek Oil Co. No. 1 Govt., NW SW sec. 31-26n-21e. S.D. 1,417 ft. to install control hd.; est. 3,000,000 ft. gas at 1,397 ft. and 1,414 ft.

Summit County

Longwell Pet. Co. No. 1, SE SW SE sec. 35-3n-5e. Drlg. 2,792 ft.; slight S.G.

NEBRASKA

Lincoln County

Helmerich & Payne No. 1 Hansen, C SW NW section 24-15n-31w, in the North Platte district, formerly Smith & Wright, was abandoned at 3,829 feet, 2 feet in the granite. It had the top of the red beds at around 2,800 feet.

Sioux County

Union Oil Co. of Calif. No. 1 Agate-15, NW SE SE sec. 15-28n-55w. Drlg. 2,100 ft.

Oklahoma Fields

(Continued from Page 314)

tion 14-2s-4w, Milroy area, was rigging up machine. J. G. Beard No. 4 Willis, C SE SW section 23-2s-6w, Woolsey pool, was rigging up rotary tools.

Jefferson County

Try Oil Co. No. 1 Reed, NW cor. section 19-7s-5w, Seay district, Jefferson County, had Hoxbar sand at 846-64 feet, total depth, and pumped 8 bbls. of oil and 20 bbls. of water daily.

Caddo-Grady Counties

Ray Stephens, Inc., No. 3 Funk, SW SE SE section 1-5-9w, was location for a test on the east side of the Cement field, Caddo County.

T. H. McCasland No. 1-A Macklenburg, SE cor. section 6-3n-5w, Knox pool, Grady County, was location for a twin well. Same operator's No. 1-A Carter-Kerns, NW NE SE section 21-3n-5w, was building derrick and moving in tools. It is on a farm-out from Carter Oil Co.

West Texas Fields

(Continued from Page 319)

Service No. 14 Culler, 3,170-3,282 feet, 403 bbls. Bradshaw Oil & Gas No. 8 Arnold, 3,207-70 feet, 784 bbls. Kewanee Oil & Gas Co. No. 7 Morse "C," 2,606-2,710 feet, 312 bbls. Stanolind Oil & Gas Co. No. 10 Kinzer, 3,272-3,314 feet, 315 bbls. Phillips Petroleum Co. No. 3 Merten, 3,160-3,230 feet, 250 bbls.

Hutchinson County

Dave Rubin and others No. 3 Barnhill, 2,855-3,206 feet, 15,158,000 feet gas. Dave Rubin No. 5 Barnhill, 2,980-3,095 feet, 17,518,000 feet gas. Stanolind Oil & Gas No. 9 Terry, 2,912-69 feet, 458 bbls. Phillips Petroleum Co. No. 1 Lizzie, 3,153-3,315 feet, 411 bbls.; No. 6 Gaile, 3,040-3,105 feet, 330 bbls.

Moore County

Shamrock Oil & Gas Co. No. 3 Robertson, 3,345-57 feet, 400 bbls. Texoma Natural Gas Co. No. 3 M. Coon-Sneed, 2,596-3,255 feet, 380 bbls. Phillips Petroleum Co. No. 1 Ward, 2,925-3,328 feet, 35,960,000 feet gas.

Kansas Fields

(Continued from Page 326)

In McPherson County, Continental Oil Co. No. 5 Kindblade, NE NE SW section 20-21-1w, Graber pool, cellar.

In Cowley County, E. B. Shawver No. 6 Shawver, SE NE SE section 3-30-4, Rock North pool, was building rotary rig; Lloyd and others No. 1-A Carson, C S half NW SE section 33-31-2, Weathered pool, rigging up rotary for salt water disposal well; Texas Co. No. 1 Wilson, NE SE NW section 4-32-3, location.

In Pawnee County, Kessler Oil & Gas Co. and others No. 1 Smith, Pawnee Rock area, SW SW NE section 13-20-16w, was a location.

In Greenwood County, Aikman & Sons No. 4 Meyers, C NE SE section 10-24-12, was drilling below 770 feet.

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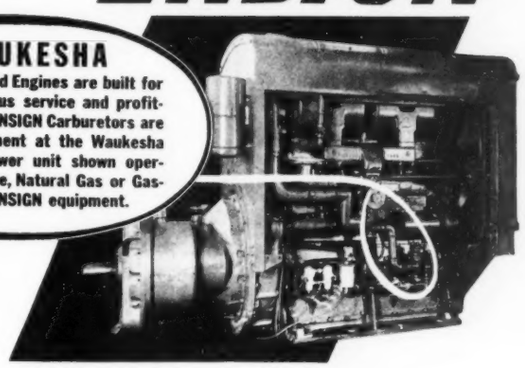

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Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, May 7. — Official tests for new potentials of crude producers on the Turner Valley west flank have been completed. Tests were based on the open flow for a 24-hour period after wells had been permitted to produce for a 10-day period at the full quota under 42 per cent proration. The official potential, on which future proration will be based, is 66⅔ per cent of the recorded open flow.

Complete official tests were made of 27 wells. With nine small wells the March daily average was taken as the potential, and three others were estimated pending test. With six new wells, temporary potentials were set, based on the average of three days' production, with regular potentials to be taken after 30 days' production.

The open flows of 27 wells aggregated 38,441 bbls. a day, while estimated or provisional figures for other wells would bring the output to 44,745 bbls. New potentials aggregate 31,918 bbls. In addition to potential crude production, the field averages about 1,800 bbls. of naphtha a day.

Potentials of New Producers

In the case of new producing wells, temporary potentials were given based on the average of the first three days' production. The regular potential will be taken after 30 days. The new producers include: Brown Oil Corp. No. 4, LSD 4, section 21-18-2w5, with 913 bbls.; Davies Petroleums No. 1, LSD 2, section 29-18-2w5, 1,065 bbls.; Spy Hill Royalties No. 1, LSD 16, section 17-18-2w5, 138 bbls.; Sunburst Oil Co. No. 1, LSD 1, section 29-18-2w5, 589 bbls.; Royalite No. 29, LSD 7, section 27-20-3w5, 487 bbls. West Turner No. 1, LSD 2, section 32-18-2w5, 1,318 bbls.

The carrying capacity of pipe lines to Calgary will be increased this month to around 24,000 bbls. a day, or about 70 per cent of the potential. Consequently some measure of proration will be maintained, though the allowable production may be increased. The situation will be affected by the gradual bringing in of new producers.

Extensive Drilling Program

With 45 crude wells in production, the Turner Valley development program already under way for 1938 is the most extensive in the history of the field. A year ago 23 wells were drilling and seven preparing to start. At present there are 41 wells drilling, 14 preparing to start, and 25 others scheduled to get under way by June 1. This program represents an outlay around $14,000,000, where last year approximately $10,000,000 was spent. On the other hand, the year is expected to see the closing of some 70 wet-gas and naphtha wells in the older section of the field under the Alberta government's contemplated conservation program.

Tests in the Lime

On the Turner Valley west flank, National Petroleum Corp. No. 2, LSD 14, section 9-18-2w5, which got the Madison at 7,070 feet, was finished in the black lime around 7,560 feet. A 5-inch production line was laid to the separator and 7,000 bbls. of storage provided to handle flush production. Production has been contracted to the Royalite Oil Co., which has laid lines to the well. Early indications were for a good producer. The well extends the proven field approximately 1 mile south.

In section 17-18-2w5, Sundance Royalties No. 1, LSD 9, got the Madison limestone at 6,948 feet and cemented casing at 6,950 feet. It is deepening below 7,058 feet.

In section 29-18-2w5, Model-Spooner-Reward No. 2, S half LSD 1, got the Madison limestone at 6,734 feet and cemented 6⅝-inch casing at 6,758 feet. Davies Petroleums No. 1, LSD 2, same section, finished in the lime at 7,375 feet, with provisional potential of 1,065 bbls. a day, shows steadily increasing pressure.

In section 32-18-2w5, West Turner Petroleums No. 1, LSD 2, finished at 7,274 feet with 1,318 bbls. provisional potential, has been acidized, and will make open flow test on May 18.

In section 28-18-2w5, Richland Royalties No. 2, LSD 5, finished at 6,950 feet with 60 bbls. temporary potential, is being treated with 10,000 gallons of acid.

In section 20-18-2w5, Sunset Oils No. 1, LSD 10, with rated potential of 1,190 bbls., has been acidized.

West Side Drilling

In West Central Turner Valley, Royalite Oil Co. No. 33, LSD 2, section 5-19-2w5, is rigged ready to spud. In section 6-19-2w5, East Crest Oil Co. No. 4, LSD 8, is below 1,400 feet. In section 32-18-2w5, Royalite Oil Co. No. 30, LSD 11, is below 6,898 feet, after fishing a lost cone. Davies Petroleums No. 4, LSD 10, is rigged. West Turner Petroleums No. 2, LSD 7, is below 4,400 feet. West Turner No. 3, LSD 6, is below 650 feet. This test, in which Dibble Mines has a 50 per cent interest, will be carried 3,000 feet with standard tools and finished with rotary. West Turner No. 4, LSD 3, has cellar dug.

In section 29-18-2w5, Commoil No. 2, LSD 10, is in hard formation below 2,269 feet. In the same section, P. & H. Development Co. No. 1 Alco, LSD 13, has spudded on acreage of Alco Oils, Ltd. Globe Royalties No. 1, LSD 7, same section, is in the Kootenay sands below 6,608 feet, and logging within 37 feet of Commoil No. 1 producer. Royalite Oil Co. No. 31, LSD 6, is below 4,432 feet.

In section 16-18-2w5, Brown Oil Corp. No. 5, LSD 12, is rigging up. In section 9-18-2w5, Marine Petroleums No. 1, LSD 11, is below 150 feet. In section 5-18-2w5, Theo Grewer and associates No. 1, LSD 14, is below 200 feet. P. & H. Development Co. No. 1 C. & E., LSD 7, is below 100 feet. In section 9-18-2w5, Baroils No. 1, LSD 3, is preparing to resume from 1,015 feet. In section 33-17-2w5, Davies Petroleums No. 3, LSD 7, bottoming at 3,142 feet, is underreaming for 10-inch casing. After setting casing, the test will change to rotary outfit.

In section 16-17-2w5, Firth Petroleums No. 1, LSD 6, is below 150 feet.

New Test Starting

In section 9-18-2w5, Rex Petroleums No. 1, LSD 9, is working on cellar. Test will probably spud this month.

Okalta Structure

On the Okalta Fold, west of Turner Valley, Okalta Oil Co. No. 3, LSD 6, section 30-18-2w5, is below 7,100 feet.

North Turner Valley

In North Turner Valley, Home Oil Co. No. 2 Millarville, LSD 6, section 33-20-3w5, is in hard formation below 835 feet.

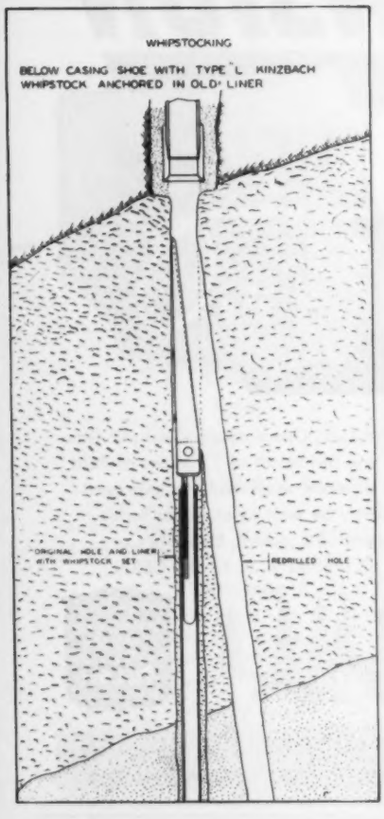
British American Operations

The British-American Oil Co., which two years ago helped finance the completion of Turner Valley Royalties No. 1, the pioneer west flank crude producer, has extended its interests in the Turner Valley field and is now taking production from 13 crude wells and five naphtha producers, in addition to handling tail gas in its absorption plant.

Standard Enters Alberta

Announcement has been made that under the joint auspices of the Standard Oil Co. of California and the Standard Oil Co. of Indiana, extensive surveys of potential oil fields in Alberta will be undertaken this season. John Galloway, geologist, of Los Angeles, formerly associated with the Taft and Kettleman Hills fields, will arrive in Calgary this month to take charge of the work, assisted by a staff of geologists and seismologists. Location of the properties to be investigated has not been made public, but neither company holds acreage in the proven Turner Valley area. The survey is primarily intended to discover an area likely to duplicate the performance of Turner Valley, and if preliminary investigation discloses a promising area, extensive development work will be undertaken. Standard Oil Co. of British Columbia, with a large refinery at Vancouver, is a subsidiary of Standard Oil Co. of California and a potential market for crude production.

RE-DRILL BELOW CASING SEAT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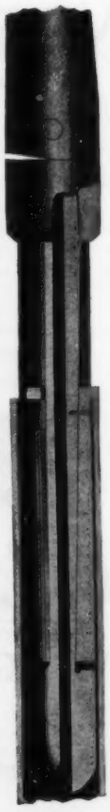

Sketch, above left, presents example. Right: Close-up of anchor section of Type "L" Whipstock.

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WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location and county—	S. T. R.	Depth	Status—
Wilshire Oil, No. 1 Gaviota, Santa Barbara	35- 5-33	3,630	gr. sd. drlg.
General Pet., No. 22 Capitan, Santa Barbara	32- 5-30	897	sd. sh. drlg.
South Crude Oil, No. 2-191 Coal Oil Point, S. Barbara	tideland	5,510	will deepen
Ohio Oil, No. 1 Morrison, Santa Maria, Santa Barbara	27-10-34	4,830	sd. sh. drlg.
Hancock-Bush, No. 2 Bradley, Santa Maria, S. Barb.	26-10-34	4,796	sd. sh. drlg.
Getty, George, Inc., No. 4 Vicente, Santa Barbara Co.	27-10-34	4,298	sd. sh. drlg.
Bankline Oil, No. 1 Silva, Santa Maria, S. Barbara	7- 9-33	3,103	sd. sh. drlg.
Hanoli Oil, No. 1 Holser, Santa Maria, Santa Barbara	27-10-34	4,790	pump 450 b.d.
Cal. Lands, Inc., No. 4 Gallison, S. Maria, S. Barbara	26-10-34	5,220	sd. sh. drlg.
Cal. Lands, Inc., No. 1 MacDonnell, S. Maria, S. Barb.	28-10-34	5,228	O.S. drlg.
Moore, E. H., No. 1-F Sugar, Santa Maria, Santa Barb.	19-10-34	2,798	sd. sh. drlg.
G. & B. Oil, No. 1 B. & G., Santa Maria, S. Barbara	26-10-34	2,097	sd. sh. drlg.
Selegna Oil, No. 1 S. M., Santa Maria, Santa Barbara	26-10-34	1,974	sd. sh. drlg.
Signal Oil, No. 1 Yelkin, Santa Maria, Santa Barbara	26-10-34	4,572	flow 970 b.d.
Union Oil, No. 1 Stinson, Santa Maria, Santa Barbara	28-10-34	5,128	pump 310 b.d.
Union Oil, No. 1 McCoy, Santa Maria, Santa Barbara	27-10-34	2,194	sd. sh. drlg.
Union Oil, No. 3 LeRoy, Santa Maria, Santa Barbara	24-10-35	5,107	sd. sh. drlg.
Union Oil, No. 2-2-O Santa Maria, Santa Barbara	20-10-34	3,620	sd. sh. drlg.
Union Oil, No. 3 Bradley, Santa Maria, Santa Barbara	25-10-34	4,120	sd. sh. drlg.
Wilson Oil, No. 1-B Santa Maria, Santa Barbara	26-10-34	5,373	sd. sh. drlg.
Sunshine Oil, No. 4-W, Santa Maria, Santa Barbara	27-10-34	2,131	sd. sh. drlg.
Jones, F. E., No. 2 Wisconsin, Santa Maria, S. Barbara	27-10-34	4,325	sd. sh. drlg.
Standard Oil, No. 1 Cat Canyon, Santa Barbara	27- 9-33	5,529	redrlg. 5,090
Petrol Corp., No. 21 Tognazzini, Gato Ridge, S. Barb.	9- 8-32	2,612	O.S. drlg.
United West. Oil, No. 1 Los Olivos, Santa Barbara Co.	16- 7-30	3,102	hd. sd. drlg.
Carpinteria Oil, No. 1 Carpinteria, Santa Barbara	32- 4-25	2,370	gr. sh. drlg.
High Mesa Oil, No. 1 Butcher, Ojai, Ventura	16- 4-22	1,380	hd. sh. drlg.
Rowe, W. G., No. 1 Johnson, Oxnard, Ventura	15- 1-22	4,376	br. sh. drlg.
Texas Co., No. 5 Yale, South Mountain, Ventura	13- 3-21	4,300	sd. sh. drlg.
Merchants Pet., No. 1 Sespe, Ventura	1- 4-20	303	sd. sh. drlg.
Claran, F. E., No. 1 Hardison, Sespe, Ventura	22- 4-20	197	sd. sh. drlg.
Continental Oil, No. 1 Elkins, Hopper Canyon, Vent.	23- 4-19	3,020	hd. sh. drlg
C. C. M. Oil, No. 22 Hobson, Rincon, Ventura	17- 3-24	4,250	flow 270 b.d.
Richfield Oil, No. 6 Hobson, Rincon, Ventura	17- 3-24	2,580	cleaning out
Tide Water A. O., No. 19 V.L.W., Ventura Ave., Vent.	26- 3-23	8,343	O.S. drlg.
Tide Water A. O., No. 31 V.L.W., Ventura Ave., Vent.	24- 3-23	7,150	flow 1,290 b.d.
Tide Water A. O., No. 68 Lloyd, Ventura Ave., Vent.	27- 3-23	4,800	sd. sh. drlg.
Tide Water A. O., No. 75 Lloyd, Ventura Ave., Vent.	27- 3-23	1,384	sd. sh. drlg.
Tide Water A. O., No. 76 Lloyd, Ventura Ave., Vent.	27- 3-23	4,176	sd. sh. drlg.
Tide Water A. O., No. 111 Lloyd, Ventura Ave., Vent.	27- 3-23	7,144	rigging up
Tide Water A. O., No. 127 Lloyd, Ventura Ave., Vent.	27- 3-23	2,796	sd. sh. drlg.
Tide Water A. O., No. 11 McGonigle, Vent. Ave., Vent.	23- 3-23	5,070	sd. sh. drlg.
Shell Oil, No. 94 Taylor, Ventura Ave., Ventura	20- 3-23	8,020	sd. sh. drlg.
Shell Oil, No. 31 Edison, Ventura Ave., Ventura	20- 3-23	5,097	sd. sh. drlg.
Shell Oil, No. 37 Gosnell, Ventura Ave., Ventura	28- 3-23	6,775	sd. sh. drlg.
General Pet., No. 13 Notten, Ventura Ave., Ventura	28- 3-23	9,871	P.B. 9,402
Lloyd Corp., No. 1 Dabney-Lloyd, Ventura Ave., Vent.	24- 3-23	4,902	sd. sh. drlg.
Amerada Pet., No. 5 Beer, Devils Den, Kern	22-26-19	8,015	hd. sh. drlg.
Gibson Oil, No. 3 Alferitz, Devils Den, Kern	14-25-18	328	sd. sh. drlg.
Hampshire Oil, No. 1 McKittrick, Kern	26-30-22	2,660	br. sh. drlg.
Chico-Martinez Oil, No. 1 Holly, South Belridge, Kern	1-29-20	555	sd. sh. drlg.
Par-Mer Oil, No. 1 Kenden, South Belridge, Kern	25-29-20	420	sd. sh. drlg.
Ohio Oil, No. 1 Ford, South Belridge, Kern	6-29-22	6,980	br. sh. drlg.
Randan Pet., No. 1 Theta, Lost Hills, Kern	3-26-20	1,311	sd. sh. drlg.
Belridge Oil, No. 27-5 North Belridge, Kern	27-27-20	5,495	br. sh. drlg.
Belridge Oil, No. 27-6 North Belridge, Kern	27-27-20	8,000	sd. sh. drlg.
Belridge Oil, No. 35-26 North Belridge, Kern	35-27-20	7,098	br. sh. drlg.
Tide Water A. O., No. 3-21 North Belridge, Kern	21-27-20	5,171	br. sh. drlg.
Richfield Oil, No. 2 North Belridge, Kern	22-27-20	5,198	br. sh. drlg.
Texas Co., No. 3 Martin, North Belridge, Kern	22-27-20	8,160	sd. sh. drlg.
Texas Co., No. 4 Martin, North Belridge, Kern	22-27-20	5,295	br. sh. drlg.
General Pet., No. 1 St. Helens, Belridge, Kern	12-28-20	8,685	fish D.P.
Shell Oil, No. 1-J Coffee, Round Mountain, Kern	30-27-29	1,606	dry; abd.
Pan-May Oil, No. 1 Coffee, Round Mountain, Kern	31-27-29	736	hd. sd. drlg.
Coast Expl., No. 1 Coffee, Round Mountain, Kern	6-28-29	1,982	will deepen
Crestmont Oil, No. 3 Staley, Round Mountain, Kern	8-28-29	1,682	O.S. drlg.
McDonald, H. A., No. 3 Larkin, Round Mt., Kern	12-28-28	1,938	O.S. drlg.
Shell Oil, No. 19 Freeman, Round Mountain, Kern	20-28-29	1,830	O.S. drlg.
Kern Oil, No. 25-1-C Kern Front, Kern Co.	25-28-27	2,007	pump 120 b.d.
Rubenstein, A. B., No. 1 Lerdo, Kern	20-28-27	3,302	pump water
Spencer Pet., No. 4 Lerdo, Kern	10-28-27	2,175	pump 140 b.d.
Helm & Smith, No. 3-A Kernco, Kern River, Kern	34-28-28	490	gr. sd. drlg.
Hast Oil, No. 1 Kern, Kern River, Kern	34-28-28	90	sd. sh. drlg.
Carter, J. P., No. 2 S. P. L., Mount Poso, Kern	3-27-28	1,456	pump 10 b.d.
Shell Oil, No. 6-A Mathews, Mount Poso, Kern	4-27-28	1,671	O.S. drlg.
Shell Oil, No. 23 Security, Mount Poso, Kern	16-27-28	1,515	sd. sh. drlg.
Seaboard Oil, No. 1 Glide, Mount Poso, Kern	7-27-28	2,832	dry; abd.
Bargol Oil, No. 2 Claflin, Mount Poso, Kern	10-27-27	2,210	sd. sh. drlg.
Framac Oil, No. 3 Brown, Mount Poso, Kern Co.	22-27-27	1,351	cleaning out
Reynolds Oil, No. 1 Premier, Mount Poso, Kern	30-27-27	2,850	P.B. 2,704
Coronado Oil, No. 1 Bonestello, Mount Poso, Kern	28-26-28	1,315	sd. sh. drlg.
Master Pet., No. 3 Recovery, Mount Poso, Kern	33-26-28	1,386	sd. sh. drlg.
Ring Oil, No. 3 Loudon, Mount Poso, Kern	32-26-28	1,710	O.S. drlg.
Ring Oil, No. 4 Shapiro, Mount Poso, Kern	32-26-28	1,722	pump 298 b.d.
Western Gulf Oil, No. 35 KCL, Fruitvale, Kern	14-29-27	2,997	sd. sh. drlg.
Wilbur, V. G., No. 1 Fruitvale, Kern	22-29-27	3,960	pump 70 b.d.
Union Oil, No. 1 Berry, Arvin, Kern	15-31-29	6,812	cmtd. 5,908
Seaboard Oil, No. 1 KCL, Wasco, Kern	26-27-24	10,243	will deepen
Superior Oil, No. 3 Wagner, Rio Bravo, Kern	35-28-25	10,274	sd. sh. drlg.
Superior Oil, No. 4 Wagner, Rio Bravo, Kern	35-28-25	2,224	sd. sh. drlg.
Superior Oil, No. 1 Anderson, Rio Bravo, Kern	35-28-25	8,770	sd. sh. drlg.
Union Oil, No. 2-34 KCL, Rio Bravo, Kern	34-28-25	11,204	milling
Union Oil, No. 3-34 KCL, Rio Bravo, Kern	34-28-25	2,192	sd. sh. drlg.
Getty Oil, No. 1 Ramsey, Rio Bravo, Kern	35-28-25	11,390	sd. sh. drlg.
General Pet., No. 1 Wagoner, Rio Bravo, Kern	35-28-25	10,192	fish D.P.
General Pet., No. 2 Wagoner, Rio Bravo, Kern	35-28-25	9,680	sd. sh. drlg.
Standard Oil, No. 18-1 KCL, Una, Kern Co.	29-28-26	7,630	sd. sh. drlg.
Dilmar Oil, No. 1 Quinn, Jasmin, Kern	15-25-27	2,956	P.B. 2,875
Amerada Pet., No. 2 Core Hole, Pasmin, Kern	35-24-27	2,100	dry; abd.
Standard Oil, No. 11-2 KCL, Greeley, Kern	20-29-26	11,355	br. sh. drlg.
Standard Oil, No. 11-13 KCL, Greeley, Kern	20-29-26	7,780	P.B. 7,745
Standard Oil, No. 11-14 KCL, Greeley, Kern	18-29-26	7,851	P.B. 7,800
Standard Oil, No. 1 Ross, Greeley, Kern	20-29-26	7,858	sd. sh. drlg.
Continental Oil, No. 1-E KCL, Stevens, Kern	17-30-26	7,670	sd. sh. drlg.
Shell Oil, No. 34-30-A KCL, Ten Section, Kern	30-30-26	7,770	sd. sh. drlg.
Shell Oil, No. 47-30-B KCL, Ten Section, Kern	30-30-26	5,198	sd. sh. drlg.
Shell Oil, No. 58-30-B KCL, Ten Section, Kern	30-30-26	3,182	sd. sh. drlg.
Shell Oil, No. 21-32-B KCL, Ten Section, Kern	32-30-26	7,750	sd. sh. drlg.
Shell Oil, No. 81-14-A KCL, Canal, Kern	14-30-25	8,350	O.S. drlg.
Ohio Oil, No. 6-E KCL, Canal, Kern	14-30-25	5,890	sd. sh. drlg.
Ohio Oil, No. 8-A KCL, Buena Vista Lake, Kern	32-31-26	10,180	sd. sh. drlg.
Standard Oil, No. 11 Monarch, Midway-Sunset, Kern	7-11-23	1,480	sd. sh. drlg.
Berry & Ewing, No. 2 Midway-Sunset, Kern	31-32-24	1,051	br. sh. drlg.
Whittier, M. H., No. 16 Hondo, Midway-Sunset, Kern	15-31-22	1,187	pump 50 b.d.
Texas Co., No. 1 Pioneer, Midway-Sunset, Kern	33-11-23	8,315	hd. sh. drlg.
Texas Co., No. 31 Midway-Sunset, Kern Co.	32-32-24	3,295	pump 285 b.d.
Salling Oil, No. 9 Midway-Sunset, Kern Co.	2-11-24	970	sd. sh. drlg.
A. B. S. Corp., No. 12 Lewis, Sunset, Kern Co.	20-11-23	3,901	sd. sh. drlg.
Hal-Baker Co., No. 1, Comanche Point, Kern	35-32-29	2,197	sd. sh. drlg.
Shell Oil, No. 4-26 KCL, San Emidio, Kern	26-11-22	9,090	sd. sh. drlg.
Richfield Oil, No. 1 KCL, Wheeler Ridge, Kern	28-11-20	1,965	gr. sd. drlg.
Pure Oil, No. 1 SPL, Cantua, Fresno	31-18-17	10,862	fish D.P.
Gauthier, J., No. 2 Hubbard, Panoche Creek, Fresno	12-14-11	635	dry; abd.
Gauthier, J., No. 3 Hubbard, Panoche Creek, Fresno	12-14-11	362	sd. sh. drlg.
Pet. Sec., No. 2 Gatchell, Jacalitos, Fresno	18-20-16	6,850	cmtd. 6,700
Dauphin Dev., No. 1 Alcalde, Fresno	30-21-14	3,778	fish D.P.
Shell Oil, No. 1 Diamond, Coalinga, Fresno	35-20-14	692	sd. sh. drlg.
Wilcox, J. F., No. 6 Coalinga, Fresno	11-20-14	329	sd. sh. drlg.
K. N. D. A., No. 67-20-J Kettleman North, Fresno	20-21-17	10,638	sd. sh. drlg.
K. N. D. A., No. 6-8-Q Kettleman North, Kings	6-22-18	7,830	gr. sd. drlg.
K. N. D. A., No. 38-8-Q Kettleman North, Kings	8-22-18	7,670	gr. sd. drlg.
K. N. D. A., No. 27-16-Q Kettleman North, Kings	16-22-18	5,472	br. sh. drlg.
K. N. D. A., No. 58-16-Q Kettleman North, Kings	16-22-18	6,195	br. sh. drlg.
K. N. D. A., No. 47-18-Q Kettleman North, Kings	18-22-18	7,815	gr. sd. drlg.
K. N. D. A., No. 43-20-Q Kettleman North, Kings	20-22-18	6,860	gr. sd. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr., or St. sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting for cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.O.N.G., water shutoff no good.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

K. N. D. A., No. 27-22-Q Kettleman North, Kings	22-22-18	2,972	sd. sh. drlg.
Standard Oil, No. 46-13-H Kettleman North, Fresno	13-21-16	9,875	sd. sh. drlg.
Standard Oil, No. 27-21-J Kettleman North, Fresno	21-21-17	10,920	P.B. 10,853
Standard Oil, No. 58-33-J Kettleman North, Fresno	33-21-17	7,770	gr. sd. drlg.
Standard Oil, No. 2-11-P Kettleman North, Kings	11-22-17	8,380	gr. sd. drlg.
Standard Oil, No. 78-1-P Kettleman North, Kings	1-22-17	5,675	sd. sh. drlg.
Standard Oil, No. 87-1-P Kettleman North, Kings	1-22-17	8,045	hd. sd. drlg.
Standard Oil, No. 21-13-P Kettleman North, Kings	13-22-17	7,248	redrlg. 5,710
Standard Oil, No. 41-7-Q Kettleman North, Kings	7-22-18	8,350	P.B. 8,150
Standard Oil, No. 74-7-Q Kettleman North, Kings	7-22-18	6,196	sd. sh. drlg.
Standard Oil, No. 85-7-Q Kettleman North, Kings	7-22-18	7,312	sd. sh. drlg.
Wilshire Oil, No. 1 Cowell, Half Moon Bay, San Mateo	20- 6- 5	8,030	P.B. 2,525
Ohio Oil, No. 1-A Willard, Willows, Glenn	18-20- 2	1,421	sd. sh. drlg.
Standard Oil, No. 1 Anderson, Rio Vista, Solano	1- 3- 2	4,458	20,000 m.c.f.
Richfield Oil, No. 1 Potrero Hills, Solano	10- 4- 1	1,180	sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location and county—	S. T. R.	Depth	Status—
Basin Oil, No. 1 Potrero, Los Angeles	34- 2-14	4,005	sd. sh. drlg.
Ohio Oil, No. 12 Gough, El Segundo, Los Angeles	7- 3-14	6,070	sd. sh. drlg.
D. & B. Oil, No. 1 Lomita, Los Angeles	30- 4-13	3,684	sd. sh. drlg.
McCaslin, W. E., No. 1 Whitney, Torrance, L. A.	23- 4-14	3,996	sd. sh. drlg.
Torrance Oil, No. 1 Lyman, Torrance, Los Angeles	14- 4-14	3,950	rigging up
Andrews & Mitchell, No. 5 Kirk, Torrance, L. A.	23- 4-14	5,098	rig to pump
Anderson, N. H., No. 1 Torrance, Los Angeles	15- 4-14	4,460	sd. sh. drlg.
McDonald & Burns, No. 8 Moore, Torrance, L. A.	23- 4-14	3,775	will deepen
Emerald Oil, No. 1 fee, Torrance, Los Angeles	23- 4-14	5,120	cleaning out
Camp, C. W., No. 12 Torrance, Los Angeles	23- 4-14	4,899	sd. sh. drlg.
Doyle Pet., No. 2 Neill, Torrance, Los Angeles	23- 4-14	4,998	cleaning out
Doyle Pet., No. 3-A Getty, Torrance, Los Angeles	14- 4-14	4,492	sd. sh. drlg.
Elyod Oil, No. 1 Post, Torrance, Los Angeles	14- 4-14	4,998	cleaning out
Timco Oil, No. 6, Torrance, Los Angeles	14- 4-14	4,993	reaming
Marel Oil, No. 1 Leaver, Torrance, Los Angeles	14- 4-14	5,025	sd. sh. drlg.
Woolner Oil, No. 1 Torrance, Los Angeles	14- 4-14	5,017	sd. sh. drlg.
Krause & Baker, No. 2 Gladys, Torrance, Los Angeles	14- 4-14	3,795	rigged up
Peters Royalty, No. 1 Torrance, Los Angeles	14- 4-14	5,023	sd. sh. drlg.
Consolidated Pet., No. 1 Torrance, Los Angeles	15- 4-14	4,198	sd. sh. drlg.
Texas Co., No. 9 Wilson, Torrance, Los Angeles	15- 4-14	3,297	sd. sh. drlg.
Wilson, R. K., No. 1 Cook, Torrance, Los Angeles	14- 4-14	3,770	cleaning out
Standard Oil, No. 1 Martin, Torrance, Los Angeles	15- 4-14	4,885	O.S. drlg.
Superior Oil, No. 6, Torrance, Los Angeles	14- 4-14	4,948	rig burned
Imperial Gypsum, No. 1 De Witt, Torrance, L. A.	14- 4-14	4,580	sd. sh. drlg.
Imperial Gypsum, No. 2 Getty, Torrance, Los Angeles	14- 4-14	3,785	rigged up
C. C. M. O. Co., No. 13, Torrance, Los Angeles	14- 4-14	3,890	cleaning out
C. C. M. O. Co., No. 23, Torrance, Los Angeles	14- 4-14	4,998	sd. sh. drlg.
Fisher, N., No. 1 Washburn, Torrance, Los Angeles	23- 4-14	5,147	cleaning out
Berken Oil, No. 1 Star, Torrance, Los Angeles	15- 4-14	4,693	sd. sh. drlg.
Shell Oil, No. 94 Reyes, Dominguez, Los Angeles	33- 3-13	7,460	sd. sh. drlg.
Union Oil, No. 58 Callender, Dominguez, Los Angeles	33- 3-13	7,549	redrlg. 3,065
Union Oil, No. 60 Callender, Dominguez, Los Angeles	33- 3-13	7,745	flow 450 b.d.
Union Oil, No. 8 Carson, Dominguez, Los Angeles	33- 3-13	7,780	sd. sh. drlg.
Barnsdall Oil, No. 3 Trust, Rosecrans, Los Angeles	18- 3-13	5,276	sd. sh. drlg.
Union Oil, No. 19 Rosecrans, Rosecrans, Los Angeles	18- 3-13	7,300	cmtd. 7,292
Universal Consd., No. 3 Trust, Rosecrans, L. A.	18- 3-13	4,675	sd. sh. drlg.
Howard Oil, No. 1 Gordon, Rosecrans, Los Angeles	19- 3-13	6,596	redrlg. 3,742
Superior Oil, No. 8 Maxwell, Rosecrans, L. A.	19- 3-13	2,883	sd. sh. drlg.
H. B. Oil, No. 1 Stephens, Rosecrans, Los Angeles	19- 3-13	6,033	idle
Barnsdall Oil, No. 3 S. F., Newhall, Los Angeles	26- 4-17	4,460	sd. sh. drlg.
Royal Lands, No. 1 Ramona, Los Angeles	8- 4-17	615	sd. sh. drlg.
West Coast Dev., No. 2 Broughton, Newhall, L. A.	27- 4-16	2,384	idle
General Pet., No. 30 Ford, Wilmington, Los Angeles	4- 5-13	2,296	sd. sh. drlg.
General Pet., No. 39 Ford, Wilmington, Los Angeles	4- 5-13	4,101	redrlg. 4,100
General Pet., No. 8 Harbor, Wilmington, Los Angeles	2- 5-13	2,712	O.S. drlg.
General Pet., No. 14 Harbor, Wilmington, L. A.	2- 5-13	3,307	O.S. drlg.
General Pet., No. 3-S. P., Wilmington, Los Angeles	2- 5-13	2,040	sd. sh. drlg.
General Pet., No. 6-S. P., Wilmington, Los Angeles	2- 5-13	4,075	flow 2,470 b.d.
Bankline Oil No. 18 D.H.C., Wilmington, Los Angeles	34- 4-13	3,313	pump 145 b.d.
Caleb Pet., No. 1 F.H., Wilmington, Los Angeles	32- 4-13	3,318	O.S. drlg.
Dunlap Oil, No. 12 Wilmington, Los Angeles	2- 5-13	3,855	sd. sh. drlg.
Hogan Pet., No. 2 Graham, Wilmington, Los Angeles	2- 5-13	2,751	sd. sh. drlg.
Hancock Oil, No. 4-A, Wilmington, Los Angeles	3- 5-13	1,998	sd. sh. drlg.
Hancock Oil, No. 11-B, Wilmington, Los Angeles	2- 5-13	3,484	O.S. drlg.
Hancock Oil, No. 16-B Wilmington, Los Angeles	2- 5-13	2,590	sd. sh. drlg.
Hancock Oil, No. 17-C Wilmington, Los Angeles	2- 5-13	2,560	sd. sh. drlg.
Hollywood Oil, No. 1 Baxter, Wilmington, L. A.	2- 5-13	2,786	sd. sh. drlg.
Macson Oil, No. 3-55-C, Wilmington, Los Angeles	32- 4-13	1,972	sd. sh. drlg.
Richfield Oil, No. 1-G Wilmington, Los Angeles	2- 5-13	6,078	P.B. 3,012
Richfield Oil, No. 2-P.D., Wilmington, Los Angeles	2- 5-13	3,561	O.S. drlg.
Richfield Oil, No. 3-P.D., Wilmington, Los Angeles	2- 5-13	3,435	O.S. drlg.
Richfield Oil, No. 6-P.D., Wilmington, Los Angeles	2- 5-13	2,660	sd. sh. drlg.
Richfield Oil, No. 11-P.D., Wilmington, Los Angeles	2- 5-13	2,283	sd. sh. drlg.
Richfield Oil, No. 18-P.D., Wilmington, Los Angeles	2- 5-13	2,340	sd. sh. drlg.
Richfield Oil, No. 20-P.D., Wilmington, Los Angeles	2- 5-13	1,991	sd. sh. drlg.
Richfield Oil, No. 26-P.D., Wilmington, Los Angeles	2- 5-13	3,215	O.S. drlg.
Richfield Oil, No. 3-R.O., Wilmington, Los Angeles	2- 5-13	2,098	sd. sh. drlg.
Richfield Oil, No. 1-P.G., Wilmington, Los Angeles	2- 5-13	3,900	O.S. drlg.
Richfield Oil, No. 4-P.G., Wilmington, Los Angeles	2- 5-13	4,310	O.S. drlg.
Superior Oil, No. 8 B.B., Wilmington, Los Angeles	2- 5-13	2,751	O.S. drlg.
Texas Co., No. 3 Ref., Wilmington, Los Angeles	34- 4-13	3,400	pump 105 b.d.
Termo Co., No. 3-D Wilmington, Los Angeles	3- 5-13	3,900	O.S. drlg.
Termo Co., No. 4-D, Wilmington, Los Angeles	3- 5-13	3,902	flow 3,500 b.d.
Universal Consd., No. 5 Newport, Wilmington, L. A.	2- 5-13	2,374	sd. sh. drlg.
Union Pacific R.R., No. 73 Wilmington, Los Angeles	34- 4-13	2,915	sd. sh. drlg.
Union Pacific R.R., No. 81, Wilmington, Los Angeles	4- 5-13	3,711	P.B. 3,531
Union Pacific R.R., No. 3-E, Wilmington, Los Angeles	3- 5-13	3,920	O.S. drlg.
Union Pacific R.R., No. 4-E, Wilmington, Los Angeles	3- 5-13	3,937	O.S. drlg.
Union Pacific R.R., No. 5-E, Wilmington, Los Angeles	3- 5-13	3,952	O.S. drlg.
Union Pacific R.R., No. 6-E, Wilmington, Los Angeles	3- 5-13	2,435	sd. sh. drlg.
Pioneer Petrol, No. 1 Irvine, Wilmington, L. A.	26- 4-13	4,890	sd. sh. drlg.
Johnston Drlg., No. 1 Pico, Montebello, Los Angeles	5- 2-11	5,641	sd. sh. drlg.
St. Helens Pet., No. 25-M, Montebello, Los Angeles	2- 2-12	5,530	O.S. drlg.
St. Helens Pet., No. 26-M, Montebello, Los Angeles	2- 2-12	5,370	sd. sh. drlg.
St. Helens Pet., No. 27-M, Montebello, Los Angeles	2- 2-12	2,687	sd. sh. drlg.
Union Oil, No. 1 Paul Howard, Montebello, L. A.	2- 2-12	6,244	sd. sh. drlg.
Union Oil, No. 1 H. & S., Montebello, Los Angeles	2- 2-12	716	cmtd. 714
Union Oil, No. 1 Wilcox, Montebello, Los Angeles	2- 2-12	5,736	sd. sh. drlg.
Standard Oil, No. 2 Harvey, Montebello, Los Angeles	2- 2-12	3,598	sd. sh. drlg.
McVicar & Rood, No. 1 Manz, Montebello, L. A.	2- 2-12	5,425	sd. sh. drlg.
Brookline Oil, No. 1 Drake, Montebello, L. A.	2- 2-12	3,582	sd. sh. drlg.
British American Oil, No. 1 Pico, Los Angeles	12- 2-12	4,295	sd. sh. drlg.
Monte Cristo Oil, No. 1, Monterey Park, Los Angeles	27- 1-12	4,990	sd. sh. drlg.
Colorado Oil, No. 19, Whittier, Los Angeles	22- 2-11	2,000	cmtd. 1,945
Hilldon Oil, No. 2 Poole, North Long Beach, L. A.	13- 4-13	3,692	sd. sh. drlg.
Signal Oil, No. 1 P.E., North Long Beach, L. A.	13- 4-13	3,760	redrlg. 1,197
Johnston Drlg., No. 33, Long Beach, Los Angeles	13- 4-13	3,196	sd. sh. drlg.
Caminol Co., No. 1-8 Dominguez, Flood Control, L. A.	14- 4-13	4,846	idle
Kramildon Oil, No. 1, Long Beach, Los Angeles	13- 4-13	6,875	sd. sh. drlg.
Marvell Oil, No. 1, Long Beach, Los Angeles Co.	19- 4-12	4,148	idle
Dunlap Oil, No. 13, Long Beach, Los Angeles Co.	30- 4-12	4,133	sd. sh. drlg.
Texas Co., No. 1 Wilson, Long Beach, Los Angeles	29- 4-12	3,287	sd. sh. drlg.
Shell Oil, No. 44 Alamitos, Long Beach, Los Angeles	28- 4-12	5,300	P.B. 4,970
Richfield Oil, No. 5-B, Long Beach, Los Angeles	13- 4-13	2,672	sd. sh. drlg.
J. E. F. Oil, No. 1 Schaaf, Huntington, Los Angeles	36- 5-11	4,370	sd. sh. drlg.
W. P. R. Oil, No. 3 Huntington, Orange	35- 3-11	6,643	pump 25 b.d.
Brea Canyon Oil, No. 48, Brea Canyon, Orange	2- 3-10	3,035	sd. sh. drlg.
Standard Oil, No. 2 Bastanchury, W. Coyote, Orange	21- 3-10	5,937	cmtd.
Standard Oil, No. 65 Emery, W. Coyote, Orange	24- 3-11	4,174	hd. sd. drlg.
Standard Oil, No. 66 Emery, W. Coyote, Orange	24- 3-11	4,205	sd. sh. drlg.
Bartholomae Oil, No. 6 Sterns, E. Coyote, Orange	22- 3-10	4,857	O.S. drlg.
Millerand Pet., No. 1 Miller, Yorba, Orange	22- 3- 9	1,277	sd. sh. drlg.
Oliver & Owen, No. 1 Anderson, Yorba, Orange	22- 3- 9	1,363	P.B. 1,350
Pearl J. Oil, No. 1 Dobashi, Yorba, Orange	21- 3- 9	1,750	O.S. drlg.
Mid-City Oil, No. 1 Day, Yorba, Orange	21- 3- 9	5,777	will deepen
Burmah Oil, No. 1 Sloan, Yorba, Orange	21- 3- 9	2,380	cmtd. 2,238
Kelmar Oil, No. 1 Yorba, Orange	16- 3- 9	2,785	gr. sd. drlg.
Hancock Oil, No. 1 Day, Yorba, Orange	21- 3- 9	2,998	gr. sd. drlg.

OKLAHOMA

Week Ending May 7

NORTHERN OKLAHOMA

Beckham County

Mid-American Oil Co. No. 1-A Biscoe, SW cor. sec. 28-8-22w. T.D. 2,764 ft.; S.D.

Cleveland County

W. A. Delaney et al No. 1 Bugher, SE SE SW sec. 12-7-2w. Drlg. 7,552 ft.

Cimarron County

Barnsdall Oil Co. No. 1 School Ld., C NW SE sec. 35-5-5ecm. Drlg. 2,200 ft.

Comanche County

Clyde Roach No. 1-A Green, SE SE SW sec. 2-1n-13w. T.D. 670 ft.; S.D.

Creek County

M. W. Mosier et al No. 1 Holcomb, SE SW NW sec. 19-18-8. T.D. 3,018 ft.; 2,-900 ft. W.I.H. and S.S.O.; S.D.

Garfield County

J. E. Kendall et al No. 1-A State, SW cor. sec. 13-23-3w. Spd.

Garvin County

First Natl. Oil Co. No. 1 Butterly, NE NE SE sec. 22-1n-1e. T.D. 100 ft.; R. U.R.

Grady County

Gulf Oil Corp. No. 1 Thomas, SW NW NW sec. 14-4-5w. T.D. 11,415 ft.; pipe stuck.

Greer County

J. H. Everitt No. 1 Graumann, NE NW NW sec. 11-5-21w. T.D. 550 ft.; S.D.

R. W. McDonald No. 1 Fite, SE SE sec. 34-7-21w. T.D. 1,330 ft.; D.&A.

Hughes County

Homer Doup et al No. 1 Bank, NE NE NW sec. 7-7-9. Drlg. 1,010 ft.

Phillaine Oil Co. No. 1 Morrison, SE SE SW sec. 13-9-10. Cg. 3,965 ft.

Phillips Pet. Co. No. 1 Becker, NE NW SW sec. 8-5-10. T.D. 6,286 ft.; plug. 5,612 ft.; drld. out to 5,660 ft.; flwd. 287 bbls. in 24 hrs., cutting 15%.

Troup & Strickland No. 1 Brown, NW SW NE sec. 32-6-8. S.D. 660 ft.

Kay County

R. J. Shaffer et al No. 1 McKee, NE NW sec. 20-28-1w. T.D. 2,500 ft.; S.D.

Kiowa County

Anderson-Prichard Oil Corp. No. 1 Cribbs, sec. 28-7n-19w. T.D. 990 ft.

Anderson-Prichard Oil Corp. No. 1 Johnson, sec. 10-7-20w. T.D. 1,030 ft.

Gauntt & Baker No. 1 Parks, NW NW SW sec. 29-7-20w. S.D. 720 ft.

Lincoln County

Wilcox O. & G. Co. No. 1 Evans, SW SW NW sec. 21-14-6. T.D. 3,170 ft.; S.O.&G.; shot; C.O.

Wilcox O. & G. Co. No. 1 Royer, SE SE NE sec. 18-14-6. T.D. 3,372 ft.; P.B. 3,240 ft.; waiting.

Logan County

Carter Oil Co. No. 1 Lydick, C E½ NW NE sec. 23-15-4w. Drlg. 6,500 ft.

Sinclair-Prairie No. 1 Crews, SW SW NE sec. 27-16-1e. Drlg. 4,734 ft.

Muskogee County

T. P. Clants No. 1 Jennings, NW NW NE sec. 8-13n-19. Drlg. 810 ft.

Heydrick No. 1 Paschall, NE SE NW sec. 22-13n-19. Drlg. 678 ft.

Murray County

Gilbreath & Dutton No. 1 Wolfe, C SE SW sec. 8-1-2. Drlg. 2,175 ft.

Okfuskee County

Alma Oil Co. No. 1 Martin, SW cor. sec. 4-12-7. T.D. 4,513 ft.

Burke-Greis Oil Co. No. 1 Capps, SE cor. sec. 7-13-7. T.D. 3,227 ft.; shot 2,818-48 ft.; 2,874 ft.; S.D. to D.D.

Okmulgee County

Bryan Pet. No. 1 Thompson, C SE NE NE sec. 8-15n-11. T.D. 3,005 ft.; P.B. 2,030 ft.; p. 28 B.O. in 24 hrs.; comp.

Osage County

Chevalier-Simon No. 1 Osage, NW NW SW sec. 33-27-5. S.D. 2,385 ft.

Norbla Oil Co. No. 1 Osage, SE cor. sec. 18-25-7. T.D. 2,784 ft.

Wah Sha She Oil Co. No. 1 Osage, NE NE NW sec. 4-28n-9. Drlg. 1,400 ft.

Pawnee County

Darby No. 1-A Lillie, NW NW SW sec. 1-22-3. Cg. 4,090 ft.

O. O. Owens et al No. 1 Riddle, C E½ E½ NW sec. 30-22-7. Drlg. 1,497 ft.

Payne County

R. L. Kemp et al No. 1 Rafferty, SE SE NE sec. 6-18-5. T.D. 3,666 ft.; H.F.O. U.R. at 3,240 ft.

Texas Co. No. 1 Logan, C W½ NW NW sec. 12-17-1e. T.D. 4,891 ft.; cg.

Pittsburg County

Supreme Oil Corp. No. 1 Hickey, NW SW NW sec. 4-2n-15. Drlg. 642 ft.

Pontotoc County

Caloma Oil Corp. No. 1 Brents, SE NE SW sec. 4-1n-6. T.D. 1,574 ft.; S.D.; lost circ.

Cowley et al No. 1 McCormick, NW SW SW SE sec. 27-2n-4e. T.D. 330 ft.

Farmers Mutual Royalty Corp. No. 1 Waite, NE NE NW sec. 9-5-5. Drlg. 2,170 ft.

Jack Lynch et al No. 1-A Parker, SW SW SE sec. 17-4-8. T.D. 4,200 ft.; S.D.R.

L. P. Sandback et al No. 1 Porter, NE SE NW sec. 28-4-7. T.D. 1,205 ft.; D. &A.

Union Dev. Co. No. 1 Abbott, SW NW NE sec. 34-3-6. T.D. 3,320 ft.; S.D.

Pottawatomie County

Mid-Continent Pet. Corp. et al No. 1 Smith, NE SE SW sec. 31-7-4. T.D. 4,505 ft.; D.&A.

Pure Oil Co. No. 1 Lack et al, SE SW NW sec. 3-6-5. T.D. 3,157 ft.; W.O.C.

Shell Pet. Corp. No. 1 Boley, SE SE SW sec. 5-11-6. T.D. 3,990 ft.

Seminole County

W. A. Delaney et al No. 1 Swan, SE SW SW sec. 18-6-6. Cmtg. csg. 2,671 ft.; O.I.H.; R.U.S.T.

Magnolia Oil Co. No. 1 Merrell, SW SE NE sec. 34-6-5. Drlg. 3,240 ft.

W. B. Pine No. 1 Wright, SE SE NE sec. 16-6-6. P.B. 3,576 ft.; W.O.C.

Smith & Greer No. 1 Coker, NW NE NE sec. 25-7-5. T.D. 3,014 ft.; C.O.; 750 ft. O.I.H.

Summitt Drlg. Co. No. 1 Wass, SE NE NE sec. 30-8-7. T.D. 4,255 ft.; shot; C.O. with 800 ft. W.I.H.; 96% wtr.; D.&A.

Texas County

Hagey et al No. 1 Peck, C NE sec. 6-1n-13ecm. T.D. 2,895 ft.; acidized 3,000,000 ft. gas; comp.

Hardendorf & Kuhn No. 2 Wiggin, C NE sec. 2-2n-14ecm. T.D. 2,540 ft.; 37,-500,000 ft. gas; comp.

Washita County

L. B. McWhirter No. 1 fee, NW SW SW sec. 34-8-19w. T.D. 2,147 ft.; fsg.

SOUTHERN OKLAHOMA

Atoka County

Amerada Pet. Corp. and Stanolind O. & G. Co. No. 1 Ridgway, NE cor. sec. 24-3s-9. Cg. 4,843 ft.

C. M. Sheldon and Gardner Pet. Co. No. 1 Lee, NE NW SW sec. 2-4s-10e. T.D. 2,900 ft.; S.D.O.

Carter County

Texas Co. No. 1-B Cathey, SE NE NE sec. 6-5s-1w. T.D. 5,685 ft.; P.B. 5,477 ft.; 1,200 ft. O.I.H.; to acdz.

Choctaw County

Dr. Hardy et al No. 1 fee, SE SE NW sec. 21-7s-15. Drlg. 310 ft.

Clyde Ross et al No. 1 Hardy, SE SE NW sec. 21-7s-15. T.D. 310 ft.; S.D.

Cotton County

Jim Turner et al No. 3 Collins, SE SE NE sec. 18-4s-10w. Loc.

Love County

Sinclair Prairie Oil Co. No. 1 Peabody, NE cor. sec. 35-6s-2w. T.D. 5,961 ft.; fsg.

Marshall County

E. W. Hughes Drlg. Co. et al No. 1 Vittitoe, C NE SE sec. 11-5s-4e. Drlg. L. 6,491 ft.

Stephens County

Coline Oil Co. No. 1 Johnson, C SW SE SE NE sec. 1-2n-8w. T.D. 10,000 ft.; 9,050 ft.; made several hd. flws., 37-grav. oil. S.I.O.

Helmerich & Payne No. 1 Mauersberger, C S½ SW SE sec. 29-2n-8w. T.D. 7,005 ft.; D.&A.

B. F. Lundy et al No. 1 Oxford, NE NE SW sec. 26-1s-4w. Drlg. 3,201 ft.

Tillman County

Smith No. 2 Hammell, NE NW NW sec 6-5s-15w. T.D. 2,000 ft.; S.D.

KANSAS

Week Ending May 7 (Descriptions are East unless marked otherwise)

Barton County

Crown Pet. Corp. No. 1 Wolf, SE SW SE sec. 36-19-12w. Spd.

R. E. Day et al No. 1 Felts, SE SE NE sec. 14-16-12w. S.D. 1,875 ft.

Deep Rock Oil Co. No. 1 Drake, NW SE sec. 4-17-13w. Drlg. 2,050 ft.

Kessler O. & G. No. 1 Bowman, SW NE sec. 22-20-16w. Drlg. 1,500 ft.

Larlo O. & G. Co. No. 1 Huline, CEL NE NE sec. 21-20-12w. Drlg. 1,300 ft.

Murfin et al No. No. 1 Rexroot, NW SE sec. 14-17-13w. S.O.&W. 3,150-75 ft.; rmg.

Price et al No. 1 Wondra, NW NE sec. 10-17-13w. T.D. 3,343 ft.; P.B. 3,342 ft.; p. 20 B.O. and 20 B.W. in 24 hrs.

Sinclair Prairie Oil Co. No. 1 Frederick, SW SW SE sec. 16-16-11w. Arb. 3,322 ft.; T.D. 3,346 ft.; set 5-in. csg. 3,322 ft.; acd.; swb. 60 B.O. and 78 B.W. in 11 hrs.

Butler County

T. S. Dustin No. 1 Miley, SE NW NE sec. 17-27-5e. C.O. 1,050 ft.

Saco Oil Co. et al No. 1 Pettit, SW NW SW sec. 21-28-6. Arb. 3,208-20 ft.; D. &A.

Chase County

T. D. Duffy No. 1 Leedy, NE NW NW sec. 26-22-9e. C.O. 1,850 ft.

Coffey County

Western Kans. O. & R. Co. No. 1 Knapp, SW SW NW sec. 27-22-14. Spd.

Cowley County

Hutchinson O. & G. Co. No. 1-A Ketchen, SW SE SE sec. 11-35-5. Drlg. 1,450 ft.

Palmer Oil Corp. No. 1 Houser, SE NW SW sec. 13-30-3e. Drlg. 2,400 ft.

Smith et al No. 1 Wilson, SE SW NW sec. 9-33-6. Drlg. 2,125 ft.

Earl Wakefield No. 1 White, NW NE sec. 4-33-4e. T.D. 3,496 ft.; S.D.

Dickinson County

Fred Franks et al No. 1 Huffman, NW NW sec. 11-13-1e. T.D. 170 ft.; rng. csg.

Ellis County

Carter Oil Co. No. 1 Foster, SE NW sec. 1-15-16w. T.D. 3,455 ft.; D.&A.

Duwe & Farris No. 1 Hadley, SE NE SE sec. 12-11-18w. Arb. L. 3,329-32 ft.; 2,800 ft. O.I.H.; to test.

Ellsworth County

Cities Service et al No. 2 Schroeder "A," CNL SW sec. 29-17-9w. Drlg. 1,200 ft.

Ralph Wixson et al No. 1 Peterman, SW cor. sec. 28-17-10w. T.D. 3,306 ft.; P.B. 3,300 ft.; acd.; pot. 786 B.O.; comp.

Finney County

Atlantic Ref. Co. No. 1 Nunn, C SE NE sec. 27-21-34w. Cg. 4,041 ft.

Ford County

Sinclair Prairie Oil Co. No. 1 Young, CSL NE sec. 34-27-21w. T.D. 4,922 ft.; S.D.

Greenwood County

Stanolind Oil Co. No. 1 Depew, NW SE sec. 13-25-12w. Drlg. 3,216 ft.

C. C. Whitaker et al No. 1 Bressner, NW SE sec. 8-26-13e. T.D. 1,477 ft.; 1,000,000 ft. gas, est.

Jackson County

Haverback et al No. 1 Marble Bank, C NE NE sec. 26-9-14. T.D. 1,310 ft.; C.O.

Jewell County

Hollingsworth Bros. No. 1 Wolfe, NE SW SE sec. 14-4s-8w. S.D. 100 ft.

Lane County

Phillips Pet. Co. No. 1 Kees, C SE SE NE sec. 28-19-11. Drlg. sdy. sh.&L. 2,207 ft.

Sloan, Lloyd et al No. 1 Sherrill, sec. 12-19-12. S.D. 780 ft.

Triangle Drlg. Co. No. 4-A Herold, NE SW sec. 13-17-12. Set 5½-in. csg. 3,009 ft.; T.D. 3,140 ft.

Union Prod. Co. No. 2 Thigpen-Herold, sec. 13-17-12. T.D. 3,162 ft.; D.S.T. 2,980-3,030 ft.; rec. 400 ft. oil and 120 ft. mud and oil in 21 min.; set 7-in. csg. 3,109 ft.; P.B. 3,132 ft.

Caddo Parish

Carroll et al No. 1 Hart, NW sec. 26-21-16. R.U.

J. P. Driscoll No. 2 Sattelite, sec. 10-20-15. Set 6-in. csg. 2,175 ft.; T.D. 2,189 ft.; fsg. for swb.

W. D. Flynn No. 4 Natalie, SE cor. sec 10-21-16. Set 7-in. at 998 ft.; W.O.; T.D. 1,027 ft.

J. T. Humphrey No. 1 Caddo Levy Rd., sec. 26-21-16. Set 7-in. csg. 2,143 ft.; T.D. 2,237 ft.

Magnolia Pet. Co. No. 25 Dillon Hrs., sec. 23-21-15. Set 7-in. csg. 1,460 ft.; tstg. 1,650 ft.

Midfield Oil Co. No. 1 Musiow, C sec. 6-20-15. R.U.

Petroleum Heat & Power Co. No. 1 Wemple, NW cor. sec. 14-20-15. Set 6- in. csg. 2,185 ft.; S.D. 2,407 ft.

G. R. Stevens No. 3 Hart, sec. 22-21-16. Set 6-in. csg. 997 ft.; W.O.S.R. 1,003 ft.

Tippett Oil Corp. No. 1 Lewis, sec. 27-20-16. Set 6⅝-in. csg. 1,355 ft.; tstd. dry 1,628 ft.; arng. D.D.

Triple M Oil Co. No. 1 Boisseau, sec. 34-21-16. S.D.; W.O. 1,888 ft.

G. H. Vaughn No. 1 Stiles, sec. 21-21-16. Drlg. 200 ft.

Caldwell Parish

E. T. Oakes et al No. 1 Kyles, sec. 18-11-3e. Set 12-in. csg. 467 ft.

Claiborne Parish

Atlantic Ref. Co. No. 1-C Bean, sec. 32-21-4. Drlg. anhy. 3,924 ft.

Harry Fetiades No. 3 King, sec. 11-20-5 Drlg. anhy. 3,924 ft.

Harry Fetiades No. 4 King, sec. 10-20-5 Drlg. anhy. & sh. 4,120 ft.

Gulf Oil Corp. No. 3 Patton, sec. 11-20-5. Drlg. L.&sh. 3,956 ft.

T. L. James No. 3 Fowler, C NW SE sec. 32-21-4. Set 5½-in. csg. 5,183 ft.; tstg. 5,205 ft.

Love Pet. Co. No. 1 English, sec. 29-21-4. Drlg. sh.&shlls. 3,465 ft.

C. H. Lyon et al No. 1-A Lloyd, sec. 2-20-5. Drlg. L.&sh. 5,190 ft.

Magnolia Pet. Co. No. 1 Lloyd, NW SE sec. 2-20-5. Sat. L. 5,252-60 ft.; set 7-in. csg. 5,252 ft.; T.D. 5,270 ft.

W. H. North et al No. 1 Patton, sec. 12-20-5. R.U.

C. R. Schuster No. 1 Kilgore, sec. 28-21-15. Drlg. 2,000 ft.

Scouts Oil Corp. No. 1 Fowler, sec. 28-21-4. Drlg. anhy. 4,002 ft.

Sells Pet. Co. No. 1-A Patton, sec. 11-20-5. Drlg. sh.&L. 5,296 ft.

Skelly Oil Co. No. 1 Enlee, sec. 28-21-4. R.U.

Sklar Oil Corp. No. 1 Kilgore, sec. 11-20-5. Drlg. sh.&L. 4,830 ft.

Texas Canadian Oil Co. No. 1 Fowler sec. 32-21-4. T.D. 857 ft.; S.D.; rep. rig.

Texas Co. No. 1 Tippett, sec. 33-21-Sat. L. 5,303-10 ft.; set 5-in. csg. 5,293 ft.; tstg. 5,318 ft.

W. A. Thorpe No. 1 Fowler, sec. 33-21-4. Drlg. sh.&L. 4,350 ft.

Union Prod. Co. No. 2 Brownfield, sec. 5-19-5. T.D. 10,661 ft.; set 7-in. csg. 10,561 ft.

Union Prod. Co. No. 1 Coleman, sec. 43-7-9e. S.O. 5,553-59 ft. and 5,568-71 ft.; lime.

G. H. Vaughn et al No. 2-B Eppinger sec. 30-21-4. T.D. 5,102 ft.; set 5-in. csg. 5,084 ft.; sat. L. 5,090-92 ft.; comp. 67 B.P.H.; 1-in. ck.; T.P. 200 lbs.; C. P. 100 lbs.

Weaver Oil Corp. No. 2 Edmonds, sec 16-20-5. Cg. 5,422 ft.

Weaver-Perry Oil Co. No. 1 Patton Est., sec. 11-20-5. R.U.

Concordia Parish

Morrison & Co. No. 1 Winston, sec. 43-7-9e. Cg. 645 ft.

De Soto Parish

S. S. Alexander No. 1 Stoll, NE cor. sec. 5-12-16. O.W.W.O.; old T.D. 6,002 ft.; set short string 5½-in. csg. 5,479 ft reperf. 5,420-40 ft.; tstg.

Hunter Co. No. 1 Parker, sec. 26-12-16 Set 9⅝-in. csg. 1,380 ft.; well blew out at 2,912 ft.; drlg. sd.&L. 3,360 ft.

La. Seaboard Oil Ref. Co. No. 1 Lawrence, sec. 36-12-14. Set 8¼-in. csg. 2,031 ft.; tstd. dry; small S.O.; arng. to D.D.

Pet. Heat & Power Co. No. 1-B Kavanaugh, sec. 12-11-12. S.D. 1,654 ft.; rep. rig.

Pet. Heat & Power Co. No. 1 Rives, sec. 20-12-11. Drlg. sh. 1,200 ft.

Pet. Heat & Power No. 1 Williams, W R., NW NE sec. 13-11-12. (Cor.); D.S T. 2,800-18 ft.; S.G.; 7-in. csg. set 2-800 ft.; tstg. 2,827 ft.; W.O.; T.D. 2,827 ft.; tstd. S.G.; arng. test 2,827 ft.

Texas Co. No. 2 White, SW NE sec. 24-12-12. Set 4½-in. csg. 835 ft.; tstd. dry; S.G.; rng. sd. pmp.; T.D. 890 ft.

Texas Co. No. 1 Thigpen, sec. 29-12-11. Drlg. sh. 2,050 ft.

Franklin Parish

Southern Star Pet. Co. No. 3 Grayson, sec. 36-12-6e. R.U.

Grant Parish

K-M Pet. Co. No. 1 Holmes, sec. 20-9-1e. Drlg. 465 ft.

C. L. Thompson No. 1 McNeely Est., NE cor. sec. 10-6-3w. Drlg. sdy. sh. 1,430 ft.

La Salle Parish

Alexander & Jarvis No. 1 Tremont, sec. 2-9-1e. Set 6-in. csg. 1,490 ft.; T.D. 1,493 ft.

Cupples et al No. 1 King, sec. 25-10-1e. Set 5⅛-in. csg. 1,540 ft.; S.D. 1,549 ft.

Lincoln Parish

Lyons & Neely No. 1 Brazzill, C SE NW sec. 17-20-4. D.&A. 5,486 ft.

Magnolia Pet. Co. No. 3 Pollock, C N½ SW SE sec. 5-20-4. Swbg. to test sat. L. 5,301-05 ft.; 7-in. csg. 5,301 ft.; T.D. 5,322 ft.; comp.; 350 B.P.D.; ¾-in. ck.

Natchitoches Parish

Roy Raines et al No. 1 Allen, sec. 22-10-9w. O.W.W.O.; R.U. to deepen.

W. P. Ryan et al No. 1 Lambert, sec. 4-8-9. Fsg. for core head 2,663 ft.

Red River Parish

Hassell & Whitehurst No. 1 LeLong, NE NW NE sec. 25-12-11. S.D. 2,874 ft.

R. M. Hutchins No. 1 Sample, sec. 11-14-11. Set 10-in. csg. 71 ft.

Sabine Parish

Major Oil Co. No. 2 Henry, sec. 12-7-13. Set 7-in. csg. 2,134 ft.

H. N. Morris No. 1 Irving & Bishop, C NW NW sec. 18-7-12. Recmtd. 6-in. csg.; T.D. 2,485 ft.

Plymouth Oil Corp. No. 1 Kezerle, sec. 3-7-13. Tstd. S.W. 2,494 ft.; will P.B.

W. L. Posey No. 1 Ramirez, C NW NW sec. 12-7-13. D.&A. 2,601 ft.

Republic Gas Co. No. 1 Whitney Corp., sec. 8-9-13. Drlg. hd. sd.&sh. 8,810 ft.

Royal O. & G. Co. No. 3-A Frost Lbr. Co., C NE SE sec. 19-9-13. Set 7-in. csg. 1,540 ft.; T.D. 1,961 ft.; tstg.

Sutton-Zwolle Oil Co. No. 1 Sabine Lbr. Co., SE cor. NW NE sec. 23-7n-14w. Cg. 3,958 ft.

J. J. Watson No. 1 Sabine, sec. 12-7-13. Drlg. sh. 1,505 ft.

Lee Whitehurst No. 6 Frost Lbr. Co., sec. 29-9-13. Set 6⅝-in. csg. 1,589 ft.

Tensas Parish

H. V. Schumacker No. 4 Mount Plantation, sec. 39-11-12e. Drlg. 1,749 ft.

Union Parish

Standard Oil Co. of La. No. 1 Frost Lbr., sec. 14-21-1e. Drlg. rd. sh. 9,238 ft.

Webster Parish

Fohs Oil Co. No. 1 Crichton, sec. 33-21-10. Drlg. L.&sh. 6,320 ft.

Hunt Oil Co. No. 6 Babb, C NE SW sec. 14-21-10. Drlg. sdy. sh. 7,682 ft.

Hunt Oil Co. No. 7 Babb, C NW SE sec. 14-21-10. Drlg. sh.&L. 5,463 ft.

Hunt Oil Co. No. 9 Davis, sec. 14-21-10. Drlg. sh.&L. 3,302 ft.

Hunt Oil Co. No. 3 Webb, C NW SW sec. 13-21-10. Drlg. L.&sh. 4,881 ft.

Magnolia Pet. Co. No. 1 Coyle-Tiner, C sec. 21-21-10. Top Bodcaw 8,522 ft.; rng. 7-in. at 8,549 ft.; comp.; 532 B.P. D. dist.; ½-in. ck.; 7-in. csg. 8,520 ft.; T.D. 8,549 ft.; T.P. 2,000 lbs.; C.P. 2,200 lbs.

Magnolia Pet. Co. No. 1 Crichton Unit, sec. 33-21-10. R.U.

Magnolia Pet. Co. and Ray Drlg. Co. No. 1 Stewart-Crichton, sec. 33-21-10. R.U.

Magnolia Pet. Co. No. 1 Robbins Unit, sec. 21-21-10. Drlg. sh. 1,930 ft.

Magnolia Pet. Co. No. 1 Sexton Unit, NW SE sec. 32-23-9. Cd. Bodcaw sd.; no show; cd. sd. 8,293-8,310 ft.; gas odor; slight show gas and dist.; cg. hd. sdy. L. 8,599 ft.; ran Schlumberger 8,521 ft.; cd. sd. 8,899-8,906 ft.; gas odor; sd. at 9,007 ft.; dist. odor; drlg. bl. sh. 9,886 ft.

Midstates Oil Corp. No. 1 Welori Lbr Co., C NW NW sec. 3-20-10. Top Tr Pk. 6,029 ft.; no Holloway sd.; set 9⅝-in. csg. 6,121 ft.; drlg. rd. bds. 6,831 ft.

Morgan et al No. 1-A Hope, C NW NW sec. 25-21-10. Drlg. sdy. sh. 7,258 ft.

North American Oil Consol. Co. No. 2 Stewart, C NE NE sec. 32-21-10. Holloway sd. 5,827-38 ft.; set 9⅝-in. csg. 5,817 ft.; comp.; 35 B.P.H.; ½-in. ck.; T.D. 5,878 ft.; T.P. 400 lbs.; C.P. 900 lbs.

Ohio Oil Co. No. 3 Bodcaw, Acct. 4, sec. 28-21-10. Drlg. hd. sd. 7,407 ft.

Ohio Oil Co. No. 49 Bodcaw (Acct. 3), C NW NW sec. 34-21-10. Set 13⅜-in. csg. 808 ft.; Bodcaw sd. 8,156-8,204 ft.; 7-in. csg. 8,162 ft.; T.D. 8,225 ft.; comp. 386 B.P.D. dist.; est. 3,000,000 ft. gas; T.P. 2,300 lbs.; C.P. 2,600 lbs.

Ohio Oil Co. No. 50 Bodcaw, Acct. 3, sec. 34-21-10. Drlg. L.&sh. 4,110 ft.

Ohio Oil Co. No. 1 Crutsinger, NE cor. sec. 35-2-10. Set 7-in. csg. 8,449 ft.

Ohio Oil Co. No. 1 Gray, NW cor. SE NW sec. 28-21-10. Drlg. hd. sd. 7,279 ft.

Ohio Oil Co. No. 24 Gray, NE cor. sec. 35-21-10. Drlg. sh.&sd. 7,244 ft.

Ohio Oil Co. No. 1 A. H. Gray, Acct. 3, sec. 26-21-10. Drlg. 5,674 ft.; no Holloway sd.

Ohio Oil Co. No. 1 Jackson, sec. 27-21-10. No Holloway sd.; set 9⅝-in. csg. 5,600 ft.; drlg. 6,130 ft.

Ohio Oil Co. No. 1 Sandlin, sec. 27-21-10. No Holloway sd.; set 9⅝-in. csg. 5,574 ft.; drlg. L.&sh. 6,182 ft.

Ohio Oil Co. and Union Prod. Co. No. 1 Tillman-Gleason, sec. 28-21-10. R.U.

Oliphant No. 3 Ranks, sec. 34-21-10. Top Tr. Pk. 5,797 ft.; fsg. for D.S. 7,669 ft.

A. G. Oliphant No. 2 Hodges, C NW SE sec. 34-21-10. Drlg. L.&sh. 5,849 ft.; Holloway sd. dry.

LOUISIANA

NORTH LOUISIANA PROVEN

Caddo—Rodessa

J. S. Rushing No. 1 Gibson, sec. 10-23-16. Sat. L. 5,909-20 ft.; set 7-in. csg. 5,912 ft.; T.D. 5,965 ft.; comp.; 588 B. P.D.; 18/64-in. ck.; T.P. 710 lbs.; C.P. 525 lbs., treated with 3,000 gal. acd.

Shell Pet. Corp. No. 5-B U. S. Govt., sec. 3-23-16. Set 5-in. csg. 6,008 ft.; T.D. 6,010 ft.; perf. 5,963-95 ft.; comp.; 215 B.P.D.; ¾-in. ck.; T.P. 250 lbs.; C.P. 600 lbs.

N. LOUISIANA WILDCATS

Bienville County

Gulf Ref. Co. No. 1 Goodpine, sec. 25- 14-8. Drlg. hd. gry. sd. 9,629 ft.

Producers O. & G. Co. No. 1 Locke, NE cor. sec. 9-15-10. O.W.W.O.; old T.D. 2,960 ft.; rmd. to 800 ft.; S.G.; hole cleaned out; sat. L. 2,952-53 ft.; set 8⅝-in. csg. 2,947 ft.; T.D. 2,962 ft.

Bossier Parish

Premier Inv. Co. No. 1 McDade, SE SW

A. G. Oliphant No. 1 Stewart, sec. 33-21-10. Holloway sd.; no show; drlg. sdy. sh. 7,945 ft.
Stanolind O. & G. Co. No. 1 Pardee Co. SW NE sec. 36-21-10. Drlg. sdy. sh. 7,993 ft.
Union Prod. Co. No. 1 Josey, sec. 27-21-10. Drlg. sh.&L. 4,052 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 Franciol, sec. 67-12s-3e. R.U.
Continental Oil Co. No. 1 Hebert, sec. 67-12s-3e. 10¾-in. csg. 1,510 ft.; T.D. 7,448 ft.; D.S. stk.; fsg.; P.B. 7,301 ft.; to sdtrk.; drlg. sh. 8,431 ft.
Continental Oil Co. No. 1 Motty, sec. 67-12s-3e. T.D. 8,065 ft.; run Schlumberger.

Baton Rouge—East Baton Rouge Parish

Wm. Helis No. 3 La. State, sec. 65-7s-1w. T.D. 6,552 ft.; prep. to D.D.

Bay St. Elaine—Terrebonne Parish

F. J. LeBlanc No. 2 Wurzlow, sec. 17-22s-18e. S.D. 816 ft.
Texas Co. No. 16 State, sec. 12-22s-17e. T.D. 6,713 ft.; salt; abd.
Texas Co. No. 17 State, sec. 18-22s-18e. Drlg. sdy. sh.&sd. 1,167 ft.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 6 Wilbert Sons Lbr. Co., sec. 66-9s-11e. T.D. 6,991 ft.; 7-in. csg. 6,982 ft.; perf. csg. 6,934-47 ft.; swbd. oil, wash wtr.; pulling scrn.

Bayou Cocotrix—Terrebonne Parish

Shell Pet. Corp. No. 5-B Realty Co. T.D 9,498 ft.; 7-in. csg. 9,475 ft.; I.P. 915 B.P.D.; 16/64-in. ck.

Bayou De Allemands—St. Charles Parish

Amerada Pet. Corp. No. 1 Gheens Realty Co., sec. 56-15s-20e. T.D. 7,010 ft.; P.B. to 6,351 ft.; D.S. stk. at 6,451 ft. fsg.
Amerada Pet. Corp. No. 4 State, sec. 13-15s-20e. 13⅜-in. csg. 1,976 ft.; drlg. sh. 6,217 ft.

Big Lake—Cameron Parish

Union Sulphur Co. No. 2 Miami Corp., sec. 19-12s-8w. T.D. 9,439 ft.; P.B. to 6,500 ft.; sdtrkd.; drlg. sh. 6,753 ft.

Black Bayou—Calcasieu Parish

Shell Pet. Corp. No. 41 Watkins, sec. 17-12s-12w. T.D. 5,199 ft.; P.B. 4,562 ft.; swbg.

Caillou Island—Terrebonne Parish

Texas Co. No. 1 L.L.&E., sec. 18-23s-20e. T.D. 5,310 ft.; P.B. and sdtrkd.; T.D. 5,099 ft.; 7⅝-in. csg. 5,069 ft.; I.P. 418 B.P.D.; ¼-in. ck.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 23 School Ld., sec. 16-14s-13w. T.D. 5,786 ft.; 7-in. csg. 5,323 ft.; tstd. S.W.; P.B. to 2,950 ft.; W.O.C.
Burton-Sutton Oil Co. No. 24 School Ld., sec. 16-14s-13w. Drlg.
Burton-Sutton Oil Co. No. 25 School Ld., sec. 16-14s-13w. Drlg. sh. 2,580 ft.
Magnolia Pet. Co. No. 22 Cameron Meadows, sec. 21-14s-13w. T.D. 4,242 ft.; 9⅝-in. csg. 4,242 ft.; perf. csg. 4,221-30 ft.; flwg. P.L. oil; went dead; pulling screen and lnr.

Cheneyville—Rapides Parish

Amerada Pet. Corp. No. 5 Weil Ld. Co., sec. 53-1s-2e. Drlg. sh. 90 ft.
Texas Co. No. 3 Weil Ld. Co., sec. 53-1s-2e. Drlg. sd.&sh. 5,630 ft.

Charenton—St. Mary Parish

Commerce Oil Co. No. 1 Dalph Parro, sec. 31-13s-10e. Cd. oil sd. 6,658-95 ft.; making D.S.T.
Pan American Prod. Co. No. 5 Laws Realty Co., sec. 25-13s-9e. R.U.
Pan American Prod. Co. No. 3 South Coast Corp., sec. 30-18s-10e. T.D. 7,833 ft.; P.B. 7,228 ft.; sdtrkd.; T.D. 8,446 ft.; P.B. 6,117 ft.; sdtrkd.; cg. sh. 7,952 ft.
Pan American Prod. Co. No. 5 Veeder, sec. 11-13s-9e. T.D. 1,138 ft.; 7-in. csg. 1,124 ft.; I.P. 65 bbls.; 20 hrs.; ⅝-in. ck.

Choctaw—Iberville Parish

La. Crusader Oil Co. No. 2 Schwing, sec. 29-8s-11e. Drlg. sd.&L. 6,656 ft.

Creole—Cameron Parish

Superior Oil Co.-Pure Oil Co. No. 2 State, Gulf of Mexico. R.U.R.; driving piling.

Darrow—Ascension Parish

Darrow Oil Co. No. 1 Dennis, sec. 68-10s-2e. T.D. 2,150 ft.; S.D.
Humble O. & R. Co. No. 17 Community, sec. 33-10s-2e. T.D. 6,584 ft.; perf. csg. 6,064 ft.; made sqz. job; drlg. out cmt. to 6,616 ft.; perf. csg. 6,587-97 ft.; made sqze. job; drld. out; perf. csg. 6,510-20 ft.; made sqze. job.
Humble O. & R. Co. No. 18 Community, sec. 30-10s-2e. R.U.
Kiva Oil Co. No. 1 Duplessis, sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 21 State, sec. 5-22s-16e. T.D. 7,174 ft.; P.B. 5,490 ft.; sdtrkd.; cg. oil sd. 6,882 ft.

Four Isle—Terrebonne Parish

Texas Co. No. 19 State-Lake, sec. 17-23s-18e. Drlg. sh. 6,144 ft.

Fausse Point—Iberia Parish

Texas Co. No. 4 State, sec. 35-11s-8e, 18⅝-in. csg. 90 ft.; top sd. 7,912 ft.; top salt 6,595 ft.; T.D. 9,246 ft.; 7⅝-in. csg. 9,236 ft.; drlg. sh. 9,335 ft.

Garden Island—Plaquemines Parish

Texas Co. No. 27 State, sec. 38-23s-33e. T.D. 5,108 ft.; 7-in. csg. 5,105 ft.; perf. csg. 4,850-4,900 ft.

Hackberry—Cameron Parish

W. T. Burton No. 1 F. Lacy, sec. 22-12s-10w. R.U.
W. T. Burton No. 3 Lewis, sec. 22-12s-10w. R.U.
John Merrick No. 1 R. Vincent, sec. 28-12s-10w. Drlg. sh. 2,360 ft.
Stanolind O. & G. Co. No. 8 Carter & Sweeney, sec. 22-12s-10w. R.U.
Stanolind O. & G. Co. No. 10 Carter & Sweeney, sec. 22-12s-10w. R.U.; (cor.).
Stanolind O. & G. Co. No. 55 State-Kelso Bayou, sec. 16-12s-10w. Cg. sd.&sh. 3,152 ft.
Superior Oil Co. No. 1 Benson-Vincent, sec. 30-12s-10w. T.D. 6,755 ft.; P.B. 6,400 ft.; sdtrkd.; drlg. sh. 6,742 ft.
Sutton Oil Co. No. 6 Duhon, sec. 22-12s-10w. Drlg. sh. 1,200 ft.
Texas Co. No. 24-B State, sec. 12s-9w. T.D. 8,052 ft.; blew out; stk. D.S.; fsg.
Union Sulphur Co. No. 1 Doiron, sec. 37-12s-10w. 7-in. csg. 4,876 ft.; T.D. 5,940 ft.; S.T.; T.D. 5,023 ft.; P.B. 5,000 ft.; rmg.

Horseshoe Bayou—St. Mary Parish

Texas Co. No. 1 St. Mary Parish Ld. Co., sec. 37-17s-9e. 13⅜-in. csg. 1,837 ft.; cg. sh.&L. 10,752 ft.; cd. sd.; oil odor 10,655-95 ft.; T.D. 11,067 ft.; 7⅝-in. csg. 11,062 ft.; drld. out to 10,912 ft.; perf. csg. 10,900-09 ft.; 10-min. D.S.T. recvd. 4 bbls. S.W. and 1 bbl. oil; sqzd. perf.; set retainer at 8,074 ft.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 1-A Roane Sugar Co., sec. 38-13s-9e. Drlg. sh. 8,450 ft.

Jennings—Acadia Parish

F. W. Bennett No. 2 Brethern, sec. 41-9s-2w. Drlg. sh.&L. 5,442 ft.
H. Fotiades No. 2 Washington Opelousas, sec. 41-9s-2w. 16-in. csg. 106 ft.; T.D. 6,659 ft.; 7-in. csg. 6,659 ft.; well blew out; reworking.
Frio Oil Co. No. 1 Gulf fee, sec. 45-9s-2w. R.U.
Frio Oil Co. No. 1 Iowa-Jennings, sec. 45-9s-2w. Drlg. sh. 1,327 ft.
Gulf Ref. Co. No. 39 Arnaudit, sec. 47-9s-2w. T.D. 4,840 ft.; P.B. 2,585 ft.; T.D. 4,586 ft.; 9⅝-in. csg. 4,578 ft.; T.D. 7,112 ft.; 7-in. csg. 7,076 ft.
L. & L. Oil Co. No. 1 Syndicate Clement, sec. 46-9s-2w. 6⅝-in. csg. 1,590 ft.; T. D. 2,124 ft.; P.B. 1,852 ft.; tstg.
T. G. Markley No. 1 Gulf Ld., sec. 45-9s-2w. Drlg. sh. 4,400 ft.
W. S. Noble et al No. 1 Ed Prather, sec. 45-9s-2w. R.U.
Pet. Heat & Power Co. No. 1 Iowa-Jennings, sec. 45-9s-2w. Drlg. sh. 3,760 ft.
Stanolind O. & G. Co. No. 19 Houssiere-Latrelle, sec. 47-9s-2w. T.D. 6,448 ft.; P.B. 6,135 ft. to strtn. hole; T.D. 6,979 ft.; P.B. 6,700 ft.; P.B. and sdtrkg. 7,509 ft.; T.D. 7,917 ft.; 7-in. csg. 7,917 ft.
Superior Oil Co. No. 2 Jules Clement, sec. 46-9s-2w. T.D. 6,829 ft.; 7-in. csg. 6,793 ft.; I.P. 54 bbls.; 15/64-in. ck.
Superior Oil Co. No. 3 Jules Clement, sec. 46-9s-2w. Drlg. sh. 1,012 ft.
Superior Oil Co. No. 9 Leckelt, sec. 42-9s-2w. T.D. 7,281 ft.; sdtrkd.; T.D. 7,404 ft.; 7-in. csg. 7,350 ft.
Superior Oil Co. No. 10 Leckelt, sec. 43-9s-2w. T.D. 4,528 ft.; fsg.
Superior Oil Co. No. 12 Leckelt, sec. 42-9s-2w. T.D. 6,695 ft.; 7-in. csg. 6,890 ft.
Superior Oil Co. No. 13 Leckelt, sec. 42-9s-2w. R.U.
Superior Oil Co. No. 14 Leckelt, sec. 42-9s-2w. Drlg. sh.&sd. 4,272 ft.
Victor Weisse No. 1 Clement, sec. 46-9s-2w. T.D. 3,247 ft.; 6⅝-in. csg. 3,032 ft. S.D.

Lafitte—Jefferson Parish

Texas Co. No. 10 Lafitte, sec. 17-17s-24e. Drlg. sh. 9,737 ft.
Texas Co. No. 1-B Madison, sec. 19-17s-24e. Drlg. sh.&L. 8,645 ft.
Texas Co. No. 3 Marrero Ld. Co., sec. 29-17s-24e. R.U.
Texas Co. No. 9 Rigolet-Cooperation Fur Co., sec. 29-17s-24e. Cd. oil sd. 10,106-11 ft.; T.D. 10,214 ft.; D.S. stk at 8,034 ft.; shot at 7,099 ft.; fsg.

Lake Barre—Terrebonne Parish

Texas Co. No. 42 State-Lake, sec. 49-21s-19e. Drlg. sh.&L. 5,700 ft.

Lake Long—Lafourche Parish

Fohs Oil Co. No. 4 State, sec. 64-17s-19e. 10¾-in. csg. 2,707 ft.; drlg. sdy. sh. 10,044 ft.

Leesville—Lafourche Parish

Texas Co. No. 68 L.L.&E., sec. 27-21s-22e. T.D. 5,139 ft.; sdtrkd.; drlg. sh. 5,956 ft.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 1 Wurzlow, sec. 32-19s-19e. Top sd. S.G. 8,423 ft.; T.D. 8,428 ft.; mixing mud.
Union Prod. Co. No. 1 Fundenburk, Unit 1, sec. 50-19s-19e. T.D. 8,872 ft.; 9⅝-in. csg. 5,867 ft.

Lockport—Calcasieu Parish

Continental Oil Co. No. 1 J. H. Moss, sec. 8-10s-9w. R.U.

New Iberia—Iberia Parish

Wm. Helis No. 10 Bernard, sec. 54-12s-7e. R.U.
Wm. Helis No. 5 Bolivar, sec. 56-12s-7e T.D. 4,337 ft.; salt; P.B. and sdtrkd T.D. 3,594 ft.; 7-in. csg. 3,100 ft.; made sqz. job 3,070-60 ft.; drlg. out cmt.
Wm. Helis No. 5 Schwing, sec. 56-12s-7e. Drlg. sd. rk. 3,745 ft.
Texas Co. No. 4 Bryant, sec. 25-12s-7e. Cg. oil sd. 4,537 ft.
Texas Co. No. 2 Burke, sec. 56-12s-7e. R.U.
Texas Co. No. 5 Duhe, sec. 26-12s-7e. T.D. 5,066 ft.; 7⅝-in. csg. 4,949 ft.; I.P. 875 bbls. oil; ½-in. ck.
Texas Co. No. 11-B Hanzen, sec. 54-12s-7e. Drlg. sh. 5,858 ft.

North Crowley—Acadia Parish

Humble O. & R. Co. No. 1 R. C. Davis, sec. 45-8s-1e. R.U.
Humble O. & R. Co. No. 2 Habetz, sec. 45-8s-1e. Drlg. sh. 2,045 ft.
Humble O. & R. Co. No. 1 Smith, sec. 44-8s-1e. 7-in. csg. 8,287 ft.; T.D. 8,855 ft.; abd.
Humble O. & R. Co. No. 1 Traham, sec. 3-9s-1e. 7-in. csg. 9,771 ft.; T.D. 10,330 ft.; run Schlumberger survey.

Port Barre—St. Landry Parish

Texas Co. No. 22 Botney Bay Lbr. Co., sec. 4-6s-5e. T.D. 3,569 ft.; P.B. 3,434 ft.; set csg. 3,434 ft.; perf. csg. 3,370-3,400 ft.; R.U. to pmp.

Quarantine Bay—Plaquemines Parish

Gulf Ref. Co. No. 4 State, sec. 17-19s-17e. T.D. 5,700 ft.; 9⅝-in. csg. 5,560 ft. cd. sd., oil odor 7,853-8,227 ft.; T.D. 8,305 ft.; rmg.; D.S.T. 8,116-8,227 ft. tstd. 540 ft. oily mud, 60 ft. oil, 640 ft.; cd. sd., oil odor. 8,312-21 ft.; T.D. 8,327 ft.; D.S.T. tstd. 3,420 ft. S.W.; sd.; no show 8,742 ft.

Raceland—Lafourche Parish

Amerada Pet. Corp. No. 1 Godchaux Sugars, Inc., sec. 34-15s-19e. 18⅝-in. csg. 262 ft.
Amerada Pet. Corp. No. 2 South Coast Corp., sec. 35-15s-19e. 11¾-in. csg. 2,666 ft.

South Roanoke—Jeff Davis Parish

Continental Oil Co. No. 1 Joe Sturdivant, sec. 36-10s-4w. R.U.

South Elton—Jeff Davis Parish

Stanolind O. & G. Co.-Amerada Pet. Corp. No. 3-B Calcasieu Natl. Bank, sec. 27 7s-3w. T.D. 9,154 ft.; conditioning hole 9⅝-in. csg. 8,647 ft.; T.D. 13,210 ft.; D.S. stk.; P.B.; 7-in. csg. 9,230 ft.; P.B. 9,188 ft.; perf. csg. 9,140-55 ft.; no showing; P.B. 8,998 ft.; perf. csg. 8,990-98 ft.; flwd. dry gas; tstg.

Starks—Calcasieu Parish

Capital Oil Co. No. 1 Lutcher-Moore, sec. 24-9s-13w. R.U.; abd. loc.

Sulphur—Calcasieu Parish

Union Sulphur Co. No. 860 fee, 1,250 ft. W and 216 ft. N of C sec. 29-9s-10w. Drlg. sh. 4,636 ft.
Union Sulphur Co. No. 861 fee, sec. 29-9s-10w. Drlg. sd. 3,122 ft.

Timbalier Bay—Lafourche Parish

Gulf Oil Corp. No. 4 State, sec. 36-23-21e. T.D. 1,373 ft.; twisted off drill collar; sdtrkd. jnk.; T.D. 2,007 ft.; W. O.C.

Valentine—Lafourche Parish

Wm. Helis No. 1 Valentine-Sugars, Inc sec. 2-17s-20e. T.D. 7,134 ft.; P.B. and sdtrkd.; T.D. 7,068 ft.; P.B. 3,500 ft.; sdtrkd.; drlg. sh.&sd. 6,728 ft.
Pan American Prod. Co. No. 2-B Community, sec. 58-17s-20e. Drlg.
Pan American Prod. Co. No. 1 Ducos-Aslabat, sec. 10-17s-20e. T.D. 7,882 ft.; P.B. 3,625 ft.; cd. oil sd. 3,830-50 ft.; T.D. 3,855 ft.; tstg.
Pan American Prod. Co. No. 17 Harang sec. 9-17s-20e. T.D. 7,496 ft.; P.B. and sdtrkd.; T.D. 6,878 ft.; D.S. stk.; P.B. 1,850 ft.; sdtrkg.

Venice—Plaquemines Parish

Tide Water Oil Co. No. 5 Manhattan Fruit Co., sec. 26-26s-30e. Top oil sd. 7,256 ft.; T.D. 7,300 ft.; P.B. 4,800 ft.; sdtrkd. at 4,813 ft.; cd. oil sd. 7,101-68 ft.; T.D. 7,290 ft.; 7-in. csg. 7,191 ft perf. csg. 5,960-64 ft.; 10-min. D.S.T.; tstd. 120 ft. drlg. mud with oil odor; perf. csg. 5,964-68 ft.; recvd. 14 stnds. of oil, 3 stnds. of drlg. mud and sd.; making sqze. job; P.B. 3,650 ft.; sidetracked at 3,629 ft.; drlg. sh. 4,155 ft.
Tide Water Oil Co. No. 7 Manhattan Ld. & Fruit Co., sec. 26-21s-30e. 10¾-in. csg. 2,462 ft.; drlg. sd. 5,992 ft.

Vinton—Calcasieu Parish

M. McLean No. 17 Gray, sec. 35-10s-12w. R.U.
J. V. Reddick No. 2 Vincent, sec. 34-10s-12w. T.D. 2,275 ft.; 7-in. csg. 2,275 ft.; perf. csg. 2,236-75 ft.; R.U. to pmp.

Villa Platte—Evangeline Parish

Amerada Pet. Corp. No. 1 A. Fournier, sec. 44-3s-2e. R.U.
Continental Oil Co. No. 1 Hattie Haas, sec. 44-3s-2e. Drlg. L. 4,780 ft.
Continental Oil Co. No. 1 Martha Haas, sec. 44-3s-2e. Drlg. L. 7,833 ft.
Continental Oil Co. No. 1 Ludeau, sec. 45-3s-2e. R.U.
Continental Oil Co. No. 1 Opelousas, St. Landry Securities Co., sec. 44-3s-2e Top Sparta 8,640 ft.; T.D. 9,110 ft.; 6⅝-in. csg. on bttm.; W.O.C.
Continental Oil Co. No. 1 T. E. Vidrine, sec. 47-3s-2e. Drlg. sh. 9,539 ft.

Welsh—Jeff Davis Parish

A. V. Peters No. 3 fee, sec. 22-9s-5w. Loc.
Stanolind O. & G. Co. No. 2 Conover, sec. 20-9s-5w. Drlg. sh. 4,809 ft.

Woodlawn—Jeff Davis Parish

Union Sulphur Co. No. 3 Calcasieu Natl. Bnk., sec. 1-9s-6w. R.U.R.

S. LOUISIANA WILDCATS

Acadia Parish

H. E. Dalton No. 1 Setting, sec. 17-7s-1w T.D. 5,106 ft.; P.B. to approx. 500 ft T.D. 3,925 ft.; D.S. stuck.
Humble O. & R. Co. No. 1 Finch, sec. 22-10s-1e. 9⅝-in. csg. 7,474 ft.; T.D. 10,222 ft.; P.B. 7,318 ft.; perf. csg. 7,308-15 ft.; flwd. 21 B.P.H. first day and started making 75% S.W.; killed; pulling screen and lnr.

Avoyelles Parish

G. C. Koch et al No. 1 Kelone, sec. 21-2n-3e. 10¾-in. csg. 987 ft.; S.D. 6,021 ft.

Beauregard Parish

Republic Prod. Co. No. 1 Lutcher-Moore Lbr. Co., sec. 10-13w-6s. 10¾-in. csg. 1,015 ft.; T.D. est. 8,290 ft.; perf. csg.; comp.; no ga.

Calcasieu Parish

Sun Oil Co. No. 1 Lutcher-Moore Lbr. Co., sec. 1-8s-13w. Cg. sh. 7,250 ft.
Wheeler Oil Corp. No. 2 Sch. Ld., sec. 16-9s-7w. 15½-in. csg. 46 ft.; S.D. 641 ft.

Cameron Parish

Humble O. & R. Co. No. 1 K. B. Hanzen, 466 ft. S and E, NW cor. SW¼ sec. 9-12s-6w. Drk.
Humble O. & R. Co. No. 1-B Miami Corp., sec. 7-14s-6w. 13⅜-in. csg. 2,150 ft.; T.D. 9,270 ft.; P.B. 8,850 ft.; drld. by fish; drlg. sh. 9,468 ft.
Superior Oil Co. No. 1 Sellis, sec. 5-15s-8w. T.D. 6,350 ft.; 10¾-in. csg. 6,350 ft.; drlg. plug.

Iberia Parish

Texas Co. No. 1 Bayless-Jones, sec. 58-12s-5e. Drlg. sh. 8,052 ft.
Texas Co. No. 2-B Vermilion Bay, sec. 20-16s-5e. T.D. 9,101 ft.; P.B. and sdtrkd. at 5,788 ft.; T.D. 7,020 ft.; P.B. 6,385 ft.; to sdtrk.; T.D. 7,623 ft.; P.B. 7,176 ft.; to sdtrk.; T.D. 7,348 ft.; 9⅝-in. csg. 7,263 ft.; drlg. sh.&L. 8,823 ft.

Jefferson Parish

Julius Szodomka No. 1 Carroll, sec. 12-12s-11e. Drlg. sdy. sh. 3,606 ft.

Lafayette Parish

Continental Oil Co. No. 1 Foreman, sec. 36-9s-3e. T.D. 10,973 ft.; abd.

Pointe Coupe Parish

Batchelor Oil Co. No. 1 Hackney, sec. 28-3s-8e. 20-in. csg. 117 ft.; 13⅜-in. csg. 2,170 ft.; drlg. sh. 8,892 ft.

Rapides Parish

J. J. Farrell No. 1 W. P. Aertker, sec. 16-4n-1e. Drk.

St. Bernard Parish

Gulf Ref. Co. No. 3 State Lake, Twp. 12s-15e. 13⅜-in. csg. 1,558 ft.; drlg. sh. 6,310 ft.

St. James Parish

Continental Oil Co. No. 1 Realty Operators, sec. 17-12s-17e. 18⅝-in. csg. 302 ft.; 13⅜-in. csg. 2,473 ft.; core sh. 5,560 ft.

St. Landry Parish

Western Gulf Pet. Co. No. 1 St. Mary Ld. Co., sec. 7-8s-9e. Drlg. sh.&L. 7,490 ft.

LEGAL

U. S. Department of the Interior, U. S. Land Office, Cheyenne, Wyoming. Notice is hereby given that the following lands are offered to the responsible qualified bidder of the highest bonus per acre for leasing, pursuant to section 17 of the act of February 25, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674) at the royalty rate scale in the lease form shown in circular 1386: Unit No. 1, lot 4 (NW¼ NW¼) Sec. 2, 40.15 acres; Unit No. 2, SW¼ SW¼ Sec. 4, 40 acres; and Unit No. 3, NW¼ SW¼ Sec. 8, 40 acres, all in T. 35 N., R. 65 W., 6th P.M., in the Lance Creek oil and gas field, Wyoming. Bids will be received on the separate units but two or more units awarded to the same purchaser may be included in a single lease. Said units will be offered for sale at public auction at this office at 10:00 A.M. on May 16, 1938. The successful bidder must deposit on the date of the sale, with the Register of the Cheyenne land office, certified check on a solvent bank, or cash, for one-fifth of the amount bid by him, and file the showing of qualifications to receive a lease, required by section 7 of General Land Office circular 1386. The remaining four-fifths, together with the annual rental in advance, at the rate of $1 per acre, must be paid prior to the issuance of the lease. The bidders are warned against violations of the provisions of section 59 of the U. S. Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids in the discretion of the Secretary of the Interior. Register.

St. Martin Parish

Texas Co. No. 11 St. Martin Ld. Co., sec. 21-8s-7e. R.U.

St. Tammany Parish

Ozro B. Phillips No. 2 W. L. Stevenson, sec. 33-6s-10e. T.D. 2,326 ft.; P.B. 1,509 ft.; made D.S.T. 1,486-1,509 ft.; showed fresh wtr.

Terrebonne Parish

Fohs Oil Co. No. 1 Buckley & Bourg, sec. 77-19s-17e. Cg. sh. 12,460 ft.

Fohs Oil Co. No. 1 State, sec. 41-19s-19e. 18⅝-in. csg. 246 ft.; cd. sd. S.G. 6,894-6,915 ft.; T.D. 9,232 ft.; 9⅝-in. csg. 9,226 ft.; drlg. sh. 10,690 ft.

Vermilion Parish

Magnolia Pet. Co. No. 1 J. B. Ferguson, sec. 5-12s-2w. 13⅜-in. csg. 3,084 ft.; drlg. sh. 6,511 ft.

Vernon Parish

W. T. Burton No. 1 Gulf Lbr. Co., sec. 32-1n-6w. Loc.

ARKANSAS

Bradley County

E. O. Olds No. 1 Dennis, sec. 4-17-21. D.&A. 4,513 ft.

Phillips Pet. Co. No. 1 Marsden, sec. 9-16w-11s. Drlg. sdy. sh. 4,553 ft.

Columbia County

Standard Oil Co. of La. No. 2 Crone, NW cor. SE SW sec. 8-16-22. Drlg. sh.&L. 6,922 ft.

Standard Oil Co. of La. No. 1 W. P. Phillips et al, 660 ft. N and W. C sec. 15-17-19. Cd. 7,380-81 ft.; oolitic L., S. O. 7,381-95 ft.; dense and porous L., stain oil, good odor gas; D.S.T. 7,351-95 ft. failed to hold; tstg.

Standard Oil Co. of La. No. 1 Waters et al, 660 ft. SE cor. SE SE sec. 7-16-22. Sat. L. 7,242 ft.; cd. 7,192-7,212 ft.; top hd. L. 7,195 ft.; top soft L. 7,197 ft.; setting csg.

Hempstead County

H. D. Easton et al No. 1 LaGrone, sec. 5-12-26. S.D. 2,880 ft.; W.O.

Little River County

Joe G. Strahan et al No. 2 Dierks Lbr. Co. Top L. 2,425 ft.; S.D. 2,497 ft.

Lonoke County

J. F. Russell No. 1 Gunter, sec. 17-5n-10w. Drlg. 585 ft.

Miller County—Rodessa

F. W. Burford No. 1 Mitchell, sec. 11-20-28. Drlg. sh.&L. 3,524 ft.

F. W. Burford No. 2-B Thomas, sec. 12-20-28. Drlg. sh.&L. 5,440 ft.

J. L. Caracas No. 1 Mitchell, SW cor. NW NW sec. 11-20-28. Drlg. sh.& anhy. 5,536 ft.

F. F. Earles No. 1 General American Life Ins. Co., sec. 20-14-26. M.I.R.

Gerhig Co. of Ark. No. 2-B Mitchell, sec. 11-20-28. Drlg. sh.&shls. 4,124 ft.

G. C. Grasty No. 2 Mitchell, sec. 3-20-28. Drlg. sh.&L. 5,818 ft.

Sam Killingsworth No. 1 Greer, sec. 11-20-28. Drlg. 150 ft.

John Kraker No. 1-C Mitchell, sec. 10-20-28. Drlg. L. 4,369 ft.

B. B. Orr No. 2 Mitchell, sec. 10-20-28 Drlg. sh.&shls. 4,480 ft.

I. Roosth No. 1 Capps, sec. 10-20-28. Sat. L. 6,115-38 ft.; set 5½-in. csg. 6,100 ft.; T.D. 6,140 ft.; acdzd. 3,000 gal.; tstg.

Texarkana Drlg. Co. No. 1 Capps, sec. 10-20-28. Drlg. ch. rk. 2,415 ft.

Texas Canadian Oil Corp. No. 2 Thomas, NE cor. NW SE sec. 12-20-28. Reperf. 6,108-16 ft., 6,125-32 ft. and 6,146-53 ft.; swbd. approx. 25 bbls. oil; treated with 3,000 gal.; swbg. to test; T.D. 6,156 ft.

Nevada County

Steele & Weber No. 1 Boswell, sec. 5-14-20. R.U.

Bruce E. Wallace No. 2 Haynie, SE cor. SE NE sec. 5-14-21. Sdy. sh. 1,194-1,204 ft.; tstd. mud, S.W. and oil 1,198-1,214 ft.; 30 min.: W.O.: T.D. 1,214 ft. set 6-in. csg. 1,198 ft.; wg.; to test.

Ouachita County

Copenhaven Oil Corp. No. 1 Evans, sec. 20-11-19. D.&A. 1,825 ft.

Pike County

Bruce E. Wallace No. 1 Tilyeu, sec. 26-8s-24w. S.D. 330 ft.

Pulaski County

Coker Oil Corp. No. 1 Stone, sec. 36-3n-11w. R.U

A. L. Kitselman, No. 2 A. L. Kitselman, Jr., SE SE SW sec. 2-1s-13e. S.D. hd. rk. 2,750 ft.

Union County—Schuler

Alice Sydney Oil Co. No. 2 Powledge, sec. 7-18-17. Drlg. sdy. sh. 6,618 ft.

Alice Sydney Oil Co. No. 3 Powledge, SW cor. SE SE sec. 7-18-17. Drlg. rd. and gr. sh. 6,334 ft.

E. M. Jones No. 3 Marine Oil Co., NW NW SE sec. 17-18-17. Jones sd. 7,605-37 ft.; T.D. 7,700 ft.; set 7-in. csg. 7,684 ft.; comp.; 12 B.P.H.; ¼-in. ck.; perf. csg. 7,602-34 ft.; T.P. 350 lbs.; C.P. 1,250 lbs.

E. M. Jones et al No. 2-A Murphy, sec 19-18-17. Drlg. hd. rd. sh. 7,014 ft.

Lion Oil Ref. Co. No. 1 Marcus, sec. 18-18-17. Drlg. rd. and gry. sh. 5,808 ft.

Lion Oil Ref. Co. No. 3 Marine Oil Co. sec. 17-18-17. Top Jones sd. 7,516 ft.; drlg. 7,588 ft.

Lion Oil Ref. Co. No. 2 Mayfield, Lot 2, sec. 18-18-17. Drlg. rd. and gr. sh. 5,575 ft.

Lion Oil Ref. Co. No. 3 Mayfield, sec. 18-18-17. Cg. 2,528 ft.

Lion Oil Ref. Co. No. 1 Edna Morgan, NE cor. Lot 5, NW sec. 18-18-17. Drlg. sdy. sh. 6,740 ft.

Lion Oil Ref. Co. No. 2 Edna Morgan, sec. 18-18-17. Drlg. rd. and gry. sh. 6,311 ft.

Lion Oil Ref. Co. No. 1 Nelson, sec. 18-18-17. Set 16-in. csg. 109 ft.

Marine Oil Co. No. 5 fee, sec. 17-18-17. Drlg. rd. and gr. sh. 6,395 ft.

Marine Oil Co. No. 6 fee, sec. 17-18-17. Drlg. rd. and gry. sh. 6,093 ft.

Phillips Pet. Co. No. 3 Justiss, Lot 6 sec. 18-18-17. Top Jones sd. 7,506 ft.; top L. 7,609 ft.; cd. 60 ft. sat. L. in Reynolds L.; drlg. 7,775 ft.

Phillips Pet. Co. No. 4 Justiss, Lot 6, sec. 18-18-17. Top Jones sd. 7,512 ft.; top L. 7,608 ft.; T.D. 7,700 ft.; set 7-in. csg. 7,673 ft.; comp.; 38 B.P.H. on 24/64-in. ck.; perf. 7,552-72 ft.; T.P. 1,175 lbs.; C.P. 2,000 lbs.

Phillips Pet. Co. No. 2 Marine, NE cor. NW NE sec. 20-18-17. Set 7-in. csg. 7,626 ft.; perf. 7,557-69 ft. and 7,545-53 ft.; comp.; 540 B.P.D. on 25/64-in. ck.; T.D. 7,640 ft.

Phillips Pet. Co. No. 3 Marine Oil Co sec. 20-18-17. Drlg. rd. sdy. sh. 6,982 ft.

Phillips Pet. Co. No. 4 Marine Oil Co., sec. 20-18-17. Drlg. rd. and gry. sh. strks. sd. 5,922 ft.

Phillips Pet. Co. No. 5 Marine Oil Co., sec. 20-18-12. Drlg. rd. sh.&sd. 5,907 ft. SW sec. 18-18-17. Drlg. rd. and gr.

Phillips Pet. Co. No. 3 Marks, C Lot 2, sh. 4,346 ft.

Texas Canadian Oil Corp. No. 1 Powledge, C NE NW NW sec. 21-18-17. Top Jones sd. 7,582 ft.; top L. 7,665 ft.; set 7-in. csg. 7,665 ft.; T.D. 7,685 ft. comp.; 1,006 B.P.D. on cks. from ⅝- to ¾-in.; perf. 7,586-99 ft. and 7,602-11 ft.; T.P. 50 lbs.; C.P. 550 lbs.

Union County—Other

Ark. Southern Oil Corp. No. 3-A Simmons, sec. 15-18-13. Set 10-in. csg. 162 ft.

J. R. Lockhart No. 1 Raulston, sec. 12-17-14. R.U.; W.O.

Joe Modisette et al No. 1 Union Sawmill Co., sec. 8-18-12. R.U.

W. D. Wingfield, Tr. No. 2 Kidd Est., SE cor. NW SW sec. 15-18-13. Sd. S.D. 2,257-2,300 ft.; set 6-in. csg. 2,250 ft.; T.D. 2,300 ft.; W.O.S.R.

TEXAS

Week Ending May 7

GULF COAST FIELDS

Lockridge—Brazoria County

Gulf Oil Corp. No. 5 Carrie Baker, J. W. Hall Sur. No. 11. R.U.

Gulf Oil Corp. No. 4 Gibson, J. W. Hall Sur. T.D. 6,368 ft.; tstg.

Hastings Field—Brazoria County

E. M. Hailey No. 2 Blumer, H.T.&B. Sur No. 28. T.D. 6,111 ft.; comp.; no ga.

Humble O. & R. Co. No. 1 R. B. Masterson, H.T.&B. Sur. No. 37. T.D. 6,103 ft.; W.O.C.

Navarro Oil Co.-Humble O. & R. Co. No. 2 E. W. F. Beers, Perry & Austin Sur. T.D. 6,089 ft.; tstg.

Jay Simmons No. 6 C. H. Alexander, H. T.&B. Sur. No. 27. Drk.

Stanolind O. & G. Co. No. 8-B C. D. Brown, H.T.&B. Sur. No. 29. Drk.

Stanolind O. & G. Co. No. 1 Peter McDonald, May Sloan Sur. T.D. 6,080 ft.; 7-in. csg. 6,078 ft.

Stanolind O. & G. Co. No. 1 J. J. Miller, R. A. Magee Sur. T.D. 6,080 ft.; comp.; no ga.

Stanolind O. & G. Co. No. 1 Carrie B. Roberts, R. A. Magee Sur. R.U.

Stanolind O. & G. Co. No. 14 G. S. Sneed, A.C.H.&B. Sur. No. 2. Drlg. sh.&L. 3,390 ft.

Old Ocean—Brazoria County

Harrison-Abercrombie No. 1 L. Augusburger, C. Breen Sur. 9⅝-in. csg. 7,011 ft.; drlg. sdy. sh. 9,167 ft.

Harrison-Abercrombie No. 1 David Kaufman, C. Breen Sur. Drlg. sh. 7,110 ft.

Harrison & Abercrombie Oil Co. No. 1 Troyer and West Texas Abst. Co., C. Breen Sur. T.D. 10,314 ft.; tstg.

Harrison & Abercrombie No. 1 I. N. Troyer, Chas. Breen Sur. R.U.

Pledger—Brazoria County

Danciger O. & R. Co. No. 1 Leona H. Carter, Grey & Moore Sur. Drk.

West Columbia—Brazoria County

Adrian Moore No. 1 Gulf fee, Geo. Tennille Sur. Drlg. sh. 4,867 ft.

Frost and Dunnan No. 1 E. S. Parker, Geo. Tennille Sur. Drlg. sh. 2,167 ft.

Mike Hogg No. 2 Varner, W. Varner Lge. Cg. sdy. sh. 5,020 ft.

Sterling O. & R. Co. No. 2 Munson, Geo. Tennille Sur. T.D. 5,444 ft.; set csg.

Texas Co. No. 20-A Abrams, George Tennille Sur. T.D. 5,931 ft.; P.B. 5,928 ft.; tstg.

Texas Co. No. 21 Abrams, Geo. Tennille Sur. T.D. 5,433 ft.; P.B. to sdtrk.; drlg. sh. 3,840 ft.

Calhoun-Heyser—Victoria County

Blanco-Buchanan No. 10 Dunwoody, A. Sisneros Sur. Drlg. sh. 4,936 ft.

Geo. Echols No. 12 W. H. Bennett, J. Galban Sur. Drlg. sh. 5,036 ft.

Seaport Oil Corp. No. 1 Mae Diener. Perf. csg. 6,029-33 ft.; comp.; no ga.

Cedar Point Field—Chambers County

Humble O. & R. Co. No. 2 State, Tr. 95. Drlg. sh. 2,574 ft.

Standard Oil Co. of Texas and Salt Dome Oil Co. No. 2 State, sec. 119. 16-in. csg. 286 ft.; 10¾-in. csg. 1,650 ft.; cg. csg. 286 ft.; 10¾-in. csg. 1,650 ft.; T. D. 6,120 ft.; run csg.

Seabreeze—Chambers County

Sun Oil Co. No. 1 R. J. Barrow, A. Yarbo Sur. T.D. 8,502 ft.; 7-in. csg. on bttm.; perf. csg. 8,485-90 ft.; swbd. S.W.

Sun Oil Co. No. 2 Sea Breeze Land Co., sec. 102, H.T.&B. Sur. Cg. sdy. sh. 8,677 ft.

Hitchcock—Galveston County

N. W. Hunter No. 3 M. Stewart, J. Spillman Sur. R.U.

Clinton—Harris County

Stanolind O. & G. Co. No. 1 Velma Johnson, Unit No. 1. Reels and Trobough Sur. T.D. 3,833 ft.; 5¾-in. csg. 3,825 ft.

Eureka—Harris County

Allamo Drlg. Co. et al No. 3 Laura Lackner, H. Reinerman Sur. Spd.

J. Frazier, No. 2 Vollmer & Neiman, J. Reinerman Sur. Drlg. sh. 4,512 ft.

Houston Oil Co. No. 2 Helberg-Lackner, J. Reinerman Sur. Drlg. 2,630 ft.

Fairbanks—Harris County

H. A. Adams No. 3, J. P. Dawson Sur. Drlg. sh.&L. 1,950 ft.

Amerada-Stanolind O. & G. Co. No. 1 Bellmare, G. Ayers Sur. Drlg. sh. 4,067 ft.

Amerada-Stanolind O. & G. Co. No. 2 E. W. Mills, A. Lawson Sur. Drk.

Amerada-Stanolind O. & G. Co. No. 1 Post, G. Ayers Sur. Cg. 6,800 ft.

Amerada Pet. Corp. No. 1 R. Smith, J. Waugh Sur. Cg. sdy. sh. 6,796 ft.

Amerada Pet. Corp.-Stanolind O. & G. Co. No. 1 J. P. Dawson, W. K. Hamblin Sur. Cg. sdy. sh. 6,812 ft.

Amerada Pet. Corp.-Stanolind O. & G. Co. No. 1 Foley, J. Clarkson Sur. T.D. 6,853 ft.; perf. csg. 6,836-54 ft.; flwd. P.L.O.; started to make S.W.; killed.

Carroll Oil Co. No. 1 Ralph Johnston, J. N. Dement Sur. Cg. sdy. sh. 6,813 ft.

Mortex Oil Co. No. 1 H. E. Ley, J. Waugh Sur. 16-in. csg. 80 ft.; T.D. 6,839 ft.; tstg.

Showers and Moncrief No. 1 G. W. Reid, J. Waugh Sur. R.U.

E. L. Smith and Ownby Drlg. Co. No. 3 Meyers, Geo. Ayers Sur. T.D. 6,835 ft.; tstg.

Smith and Ownby Drlg. Co. No. 1 E. M. White, J. Clarkson Sur. R.U.

Union Prod. Co. No. 1 Goodykoontz, W. S. Powell Sur. Drlg. sh. 1,510 ft.

Friendswood—Harris County

Humble O. & R. Co. No. 7 Beamer, T. Choate Sur. Drlg. sd. 1,710 ft.

Humble O. & R. Co. No. 2 B. H. Goodwin, W. K. Smith Sur. Drlg. sh. 5,725 ft.

Humble O. & R. Co. No. 8 E. A. Grey, Perry & Austin Sur. Drlg. sh. 1,560 ft.

Humble O. & R. Co. No. 1 Herman Hospital, T. Choate Sur. T.D. 5,790 ft.; flwd. wash wtr.; set retainer; W.O.C.

Humble O. & R. Co. No. 2 Herman Hospital, T. Choate Sur. Drk.

Humble O. & R. Co. No. 1 J. L. Jones, Perry & Austin Sur. Drk.

Humble O. & R. Co. No. 1 Port City, T. Choate Sur. Drlg. L. 3,550 ft.

Humble O. & R. Co. No. 1 E. E. Watson. Drk.

North Edna—Jackson County

Crown Central Oil Co. and H. J. Porter No. 2 Foust, Peter White Sur. T.D. 2,766 ft.; making D.S.T.

Clam Lake—Jefferson County

Shell Pet. Corp. No. 2 McFaddin, S. A.

WUXTRA - EXTRA-NEWS - HOT NEWS that's the story the MILLER is writing in oil fields throughout the world—removing sand and sediment—increasing production—quickly at small cost.

The MILLER is made in diameters of 2½, 3, 3½, 4, 4¼, 5, 5½, 7 and 9 inches and lengths of 20, 25 and 30 feet. 5/32-inch wall thickness in REGULAR Type, ¼-inch wall tubes HEAVY Type Sand Pumps.

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To Meet Every Condition

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With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.

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Used when tools are run and when well is shot to quickly remove loose material.

● STAR BOTTOM
Used for cutting the sand loose.

● CHISEL BOTTOM
(In Pump)
With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

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See Page 1186 COMPOSITE CATALOG

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FOR SALE BY SUPPLY STORES EVERYWHERE

Pace Sur. Cd. oil sd. 5,553 ft.; cg. sh. 6,122 ft.

North Cheek—Jefferson County

Magnolia Pet. Co. No. 4 J. H. Phelan, A. Stivers Sur. 18⅝-in. csg. 135 ft.; drlg. sh. 7,835 ft.

Hardin—Liberty County

Atlantic Ref. Co. No. 2 A. E. Cessna, H. B. Johnston Sur. T.D. 7,625 ft.; I.P. 504 B.P.D.; ¼-in. ck.

Atlantic Ref. Co. No. 1-B McMurtry, A. B. Hardin Sur. T.D. 1,868 ft.; W.O.C.

Atlantic Ref. Co. No. 2 W. McMurtry, H. B. Johnson Sur. T.D. 7,871 ft.; 7-in. csg. on bttm.; perf. csg. 7,828-31½ ft.; jetting with gas; no ga.

Fohs Oil Co. No. 2 Johnson-Finley, H. B. Johnston Sur. 9⅝-in. csg. 178 ft.

Gulf Oil Corp. No. 3-A J. C. Barfield, H. B. Johnston Sur. R.U.

Humble O. & R. Co. No. 3 Chambers, A. B. Hardin Sur. T.D. 7,580 ft.; W. O.C.

Sun Oil Co. No. 2 Hisey, H. B. Johnston Sur. T.D. 7,708 ft.; 5¾-in. csg. 7,660 ft.

Woodley Pet. Co. No. 1 W. S. Partlow, H. B. Johnston Sur. R.U.

Woodley Pet. Co. No. 1 West et al, H. B. Johnston Sur. R.U.

Bay City—Matagorda County

Hamman Expln. Co. No. 2 Crooke, E. Hall Sur. Top sd. 9,660 ft.; tstg.; no report.

Hamman Expln. Co. No. 2 G. M. Sloan, J. T. Belknap Sur. Drk.

McCrosky—Matagorda County

Pierce Est. No. 2 fee, I.&G.N. Sur. No. 7. 10¾-in. csg. 1,081 ft.; cg. sh. 6,597 ft.

Palacios—Matagorda County

Bennett Prod. Co. No. 1 Foley Ld. Co., L. Goodwin Sur. Cg. sd.&sh. 7,510 ft.

Sun Oil Co. No. 1 F. K. Robeson, L. Goodwin Sur. Drk.

Orange—Orange County

W. V. Bowles No. 1 J. H. Scales, Wm. Dyson Sur. Drlg. sh. 4,896 ft.

C. L. Brown No. 1 Lutcher-Moore, J. Dyson Sur. T.D. 5,989 ft.; tstg.

Gulf Oil Corp. No. 1 O. Duhon, Wm. Dyson Sur. Cg. sd.&sh. 7,597 ft.

Ryan & Thompson No. 1 Walter-McGill, Wm. Dyson Sur. T.D. 6,123 ft.; rng. csg.; top oil sd. 6,112 ft.; 7-in. csg. 6,111 ft.; flwd. P.L.O. for 6 hrs.; went dead; swbd. S.W.; made sqze. job; drld. out 6,114 ft.; flwg. 26 B.F.P.H.; 25 to 30% S.W.; pulling screen and lnr. to recmt. in attempt to shut off wtr.

Segno—Polk County

Gulf Oil Corp. No. 2 Ragan, I.&G.N. Sur. 15. 9⅝-in. csg. 5,587 ft.; 20-min. D.S.T. 5,146-61 ft.; tstd. 2,400 ft. P.L.O.; 140 lbs. pres.; T.D. 9,012 ft.; S.D. for repairs.

Humble O. & R. Co. No. 2 W. T. Carter, T. F. Pinkney Sur. T.D. 5,198 ft.; tstg.

Humble O. & R. Co. No. 8-B Kirby, M. Victor Sur. Drlg. sh. 6,930 ft.

Spurger—Tyler County

Republic Prod. Co.-Houston Oil Co. No. 9 Hurd, N. Hurd Sur. Drlg. sh. 7,182 ft.

GULF COAST WILDCATS

Brazoria County

Pure Oil Co. No. 1 Clemons State Farm S. F. Austin 7⅛ Lge. 7⅝-in. csg. 1,955 ft.; T.D. 6,739 ft.; D.S. stk.

Brazos County

Pet. Heat & Power Co. No. 1 Minnie C. Dunn, J. M. Barrera Sur. Drlg. sh. 4,527 ft.

Burleson County

Red Bank Oil Co. No. 1 Coffield, E. Sante Sur. T.D. 6,171 ft.; L.; making dist.

Calhoun County

Adams & Lyles et al No. 1, Lemuel Walker Sur. R.U.

Chambers County

Geo. Anderson No. 1 Julia Casey, W. D. Smith Sur. Loc.

Fort Bend County

Strake Pet. Corp. No. 1 Sugarland Industries, Wm. Stafford Sur. T.D. 5,199 ft.; P.B. 5,160 ft.; perf. csg. 5,122-57 ft.; tstd. wash wtr; S.S.O.; abd.

Galveston County

Sun Oil Co. No. 1 Atkins, Burrell Franks Sur. Drlg. sh. 4,037 ft.

Sun Oil Co. No. 1 Cade, A. Dickinson. 13⅜-in. csg. 2,218 ft.; drlg. sd. 6,380 ft.

Harris County

Chapman Mineral No. 1 O. Harris, Wm. Jones Sur. T.D. 7,744 ft.; abd.

J. Frazier-C. B. Bunte et al No. 1 Houston Deep Water Ld. Co., Thos. Earle Sur. R.U.

J. Frazier No. 1 Robert Gillespie, S. Contreras Sur. Drlg. sh. 7,110 ft.

W. S. Howell No. 1 Root, A. McCormick Sur. S.D. 2,807 ft.

O. W. Killam No. 1 Mary Hambien, W. C. R.R. Sur. No. 11. Drlg. sh. 5,967 ft.

West Prod. Co. No. 1A fee, Geo. B. McKinstry Sur. Drlg. sh. 5,738 ft.

Jasper County

John Mayo No. 1 Cartwright, Legrande Sur. Drk.

Jackson County

Humble O. & R. Co. No. 1 J. R. Davis, I.&G.N. Sur. No. 20, Blk. 150. Drk.

Magnolia Pet. Co. No. 1 West Ranch, Ramon Musquez Sur. Drlg. sh. 2,639 ft.

Jefferson County

I. E. Harwell No. 1 State, Gulf of Mexico T.D. 5,840 ft.; D.S. stk.; pulled in two; S.D.; may abd.

Humble O. & R. Co. No. 1 State, Gulf of Mexico, sec. 8. Top salt 2,603 ft.; S.D. salt 2,655 ft.

Matagorda County

J. K. Dorrance No. 1 M. Adamcik, I.&G. N. Sur. No. 1. T.D. 7,512 ft.; P.B. 3,500 ft.; sdtrkd.; drlg. ahead.

Rutherford Drlg. Co. No. 1 J. A. Birkner-Williams, Low, Thayton and Barter Sur. T.D. 7,245 ft.; rmg.

Sun Oil Co. No. 1 Fred Robbins, C. H Vandeveer Sur. T.D. 10,160 ft.; well tried to blow out; 7-in. csg. 10,150 ft. prep. to perf. csg.

Texas Co. No. 1 C. T. Kountze, P. J. Poole Sur. Drlg. sdy. sh. 5,890 ft.

Montgomery County

J. Smith et al No. 1 J. V. Scott, F. A. B. Wheeler Sur. R.U.

Orange County

Texas Co. No. 1 H. J. Lutcher-Stark, Stephen Jett Sur. Drlg. sh.&L. 5,456 ft.

Polk County

C. E. Gates No. 2 I. O. Jackson, J. W. Abbey Sur. Drk.

San Jacinto County

J. W. Oliphant No. 1 Gibbs, Chas. Memin Sur. Drlg. sh.&L. 3,255 ft.

Trinity County

Boone Bros.-Jordan Drlg. Co. No. 1 Crauch, Joel Clapp Sur. Spd.

M. B. Gossage No. 1 C. H. Elliott, Joel Clapp Sur. Drk.; abd. loc.

Tyler County

Glenn H. McCarthy No. 1 J. A. McShane, B.B.B.&C. Sur. No. 13. Drk.

Waller County

David MacDaniel No. 1 H. C. Leverkuhn, Lacey Pearsall Sur. 10¾-in. csg. 832 ft. fsg.; unreported T.D.

Stanolind O. & G. Co. No. 1 Freeman, H.&T.C. Sur. No. 99. Cg. sdy. sh. 7,125 ft.

Wharton County

T. A. Carlton No. 1 Lewis, S. Castleman Sur. Drlg. 1,250 ft.

S. W. TEXAS WILDCATS

Atascosa County

W. M. Allison No. 1 Nieschwietz, J. De La Garza Sur. 216. S.D. 575 ft.

G. D. Curly and R. E. Phalon No. 1 Henritta Kresch, J. C. Dierks Sur. S.D. 20 ft.

G. C. Richardson No. 1 Fisher, Beaty & Moulton Sur. 1013. Drlg. sh. 495 ft.

S.W.R. Corp. No. 1 Miller, J. Neill Sur. S.D. 702 ft.

Bastrop County

J. W. Bibb No. 1 Lentz, F. Wilkenson Sur. Top Austin Chalk with odor of oil 2,530 ft.; 5½-in. csg. 2,443 ft.; T.D. 2,614 ft.; abd.

R. C. Franklin No. 2 Yarrington, Jose Manuel Bangs Sur. S.D. 110 ft.

Humble O. & R. Co. No. 1 Hellsman, J. Cunningham Sur. T.A.C. 5,631 ft.; drlg. chk. 5,872 ft.

Ralph Ogden No. 1 Storey, Henry Warnell Sur. Drk.

Western Gulf Pet. Co. No. 1 Green, Samuel Williams Sur. No. 4. Top ck. 2,586 ft.; T.D. 3,400 ft.; abd.

Bexar County

Eckert & Son. No. 1 Nutzel, N1 Motoya Sur. No. 21. Loc.

Nami Herman No. 1 W. F. Fields, A. Bustillos Sur. T.D. 375 ft.; S.D.

Luling O. & G. Co. No. 1 Russell, Fernando Rodriquez Sur. T.D. 1,480 ft.; Edw. L.; P.B. 1,180 ft.; abd.

Caldwell County

Banke Miller Oil Co. No. 1 Martindale, Hector McNeil Sur. Cg. Glenrose L. 2,435 ft.; no report.

Jan Oil Co. No. 1 Chew, J. McCoy Sur. Drlg. chk. 2,622 ft.

Mencill Pet. Co. No. 1 J. Wallinger, Gedeon Pace Sur. S.D. 536 ft.

C. R. Richardson No. 1 Schowe, T. Maxwell Sur., Abst. 188. S.D. 850 ft.

Cameron County

Saxet Prod. Co. No. 1 Port Isabel Irrig Co. Sur. 30. Drk.

E. B. Whittington No. 1 Gilmer, H. C. Williams Sur. No. 62. R.U.

De Witt County

Howeth et al No. 1 Tipton, Sidney Sherman Sur. Drlg. sh. 4,502 ft.

Mayo Oil Co. No. 1 W. D. McCurdy, John Hunt Sur. R.U.

Dimmitt County

Texas & Maryland Corp. No. 1 McKnight, Blk. 13, sec. 23. Base of Austin Chalk 5,201 ft.; top Georgetown L. 6,120 ft.; 5½-in. csg. 7,094 ft.; T.D. 7,141 ft.; P.B. 2,850 ft.; swbd. S.W.; prep. to shoot at 2,450-55 ft.

Duval County

Henry Brown No. 1 Guy Est., M. E. Gussett Sur. Drlg. 2,410 ft.

Circle Oil Co. No. 1 Graham, El Paso Irrg. & Mfg. Co. Sur. No. 571. T.D. 5,010 ft.; abd.

Frank Gravis No. 1 Megargal, J. Boyles Sur. 10-in. csg. 500 ft.; S.D.

Magnolia Pet. Co. No. 1 Weill Est., Sur. 496. T.D. 2,074 ft.; tstg.

H. J. Porter No. 1 Fitzsimmons, J. Poitevent Sur., sec. 291, R.U.

Standard Oil Co. of Texas No. 1, Dolores Garcia Sur. Loc.

P. T. Wright No. 1 Hyatt, Sweden Farm Lots Subd. R.U.; abd. loc.

Edwards County

Evans & Love No. 1 Steve Brown, Blk. 6, G.W.T.&P. Sur. S.D. 6,261 ft.

Frio County

F. L. Thompson No. 1 Davis, G.B.&C.N. G. Sur. No. 1. Drlg. limey sh. 3,047 ft.

Guadalupe County

Benstrasser No. 1 Eickenroht, A. Marra Esnaurrezar Sur. R.U.

Thad O'Day No. 1 Amber, James Alley Sur. Drk.

Hidalgo County

Hidalgo Prod. Co. No. 1 Daskam Corp., Porc. 45, Blk. 34. S.D. 3,296 ft.

Jim Hogg County

Humble O. & R. Co. No. 1 Anna Kelsy Bass, San Rafel Gr. 10¾-in. csg. 1,207 ft.; drlg. sd. 2,370 ft.

Jim Wells County

E. Calloway et al No. 1 E. O. Cook, Lavaca Grant Sur. Drlg. sh. 2,020 ft.

Conroe Drlg. Co. et al No. 1 Lindsay & Reed, Lavaca Gr. Spd.

H. H. Howell et al No. 2 Lindsey, Lavaca Gr. P.B. 2,500 ft.; to straighten hole.

H. H. Howell No. 3 Lindsay et al, Lavaca Gr. Sur. Drlg. 2,018 ft.

Richardson Pet. Co. No. 2 Garcia, R. E. L. King Sur. Cg. sh. 5,020 ft.

Southern Minerals Corp. No. 2 Talbert, Lavaca Gr., Jose Maria Garcia Sur. R.U.; abd. loc.

Southern Minerals Oil Corp. No. 1 J. R. Trussells, Lavaca Gr. 10¾-in. csg. 540 ft.

Kerr County

Edminston No. 1 Saul, Sur. 47. S.D. 55 ft.

Kleberg County

Pure Oil Co. et al No. 1 State Ld., Tr. 68, Laguna Madre Bay, Lse. No. 528 R.U.

La Salle County

Finley S. Ewing No. 1 Pugh, E. L. Garrett Sur. Drlg. 910 ft.; no report.

Lee County

Kleoussa Oil Co. No. 1 Sanders, J. Vin Roeder Sur. T.D. 4,398 ft.; prep. to resume drlg.

Live Oak County

Hantho-Nelson No. 1 Geo. West, G. L. Haas Sur. Drlg. 2,130 ft.

Holland Oil Co. No. 1 West Est., C. Q. Ragland Sur. 10¾-in. csg. 189 ft.

J. I. Newton No. 2 Geo. West, James Wright Sur. 10-in. csg. 189 ft.; S.D. 1,590 ft.

V. G. Schimmel et al No. 1 Geo. West, G. L. Haas Sur. T.D. 1,950 ft.; S.D.

Transwestern Oil Co. No. 1 Stephens, C. F. Simmons Subd., sec. 74. Drlg. sh. 1,757 ft.

McMullen County

Duncan Drlg. Co. No. 1 Martin Henry, sec. 6. S.D. 707 ft.

Hamill and Smith No. 1 Franklin, Live Oak Co. Sch. Ld. Sur. No. 3. Drlg. 810 ft.; no report.

R. C. Lipscomb No. 1 Shiner, sec. 54, Shiner ranch. Cd. oil sd. 1,365-70 ft.; S.D. 1,752 ft.

S. M. Nesser No. 1 Franklin, J. Poitevent Sur. No. 33. Loc.

G. G. Newton No. 1 Bryne, Geo. Pettuck Sur. R.U.

V. G. Schimmel No. 1 Jefferson O. & G. Co., C. P. Wright Sur. No. 92. S.D. 2,615 ft.

Medina County

F. A. Brown No. 1 Senne, A.C.H.&B. Sur. 105. Logged 8 ft. of sat. oil sd. 802-11 ft.; (corrected); 7-in. csg. 802 ft.; cd. sh. 811-29 ft.

J. W. Cromwell No. 1 J. W. Tondre, I. J. Rogers Sur. T.D. 725 ft.; S.D.

D. K. J. Oil Co. No. 1 Burrell. T.D. 2,039 ft.; S.D. after swbg. dry.

F. J. Dykstra No. 2 McMenemy, G. Petty Sur. T.D. 2,157 ft.; abd.

S. F. Ewing No. 2 Riff, J. Haby Sur. No. 42. T.D. 622 ft.; tstg.

Gee Hayes et al No. 1 Conrad, J. Keppler Sur. S.D. 400 ft.

Owens and Dean No. 1 Ben Haby, Albert Kempf Sur. No. 37. T.D. 510 ft.

Taylor & Pepper No. 1 Saathoff, Peter Eichorn Sur. S.D. 260 ft.

J. R. Trentman et al No. 1 Carle Merc. Co., V. A. Johnson Sur. T.D. 1,905 ft.; 7-in. csg. 1,835 ft.; csg. split; prep. to sqze. split with cmt.; S.D.

M. L. Walker No. 1 Zuberbulen, A. Bonany Sur. Spd. and S.D.; prep. to resume drlg.

Milam County

Clark & Morgan No. 1 Johnson, Juan Jose Acosta Sur. S.D. 575 ft.

Texedo Oil Co. No. 1 Graham, Charles Cornea Sur. Logged S.O. 1,135-36 ft.; S.D. 1,760 ft.

Texedo Oil Co. No. 1 Paul Garves, C. Robertson Sur. S.D. 1,170 ft.; C.O.; set 7-in. csg. 1,167 ft.

Nueces County

Coast Line Oil Co. No. 1 State (Redfish Bay), State Tr. No. 32. Drlg. sh. 6,469 ft.

Mills Bennett Prod. Co. No. 1 Fred Talley, sec. 10, Geo. Paul Subd. 10-in. csg. 759 ft.; drlg. sh. 4,325 ft.

Refugio County

I. J. Allen et al No. 1 Rooke, Jose Miquel Aldrite & Jose Maria Aldrite 4½ Lge. R.U.

San Patricio County

A. L. Bob No. 2 Green, T. T. Williamson Sur. S.D. 7,100 ft.

Conroe Drlg. Co. No. 1 Kune and Whittcliff, sec. 39, Coleman Fulton Pasture Lds. 10-min. D.S.T. 5,967-82 ft. recvd. 1,570 ft. of S.W.; drlg. ahead.

J. K. Culton No. 1 White Point Dev. Co., J. H. Sequin Sur. No. 4. Cg. 4,455 ft.

Humble O. & R. Co. No. 1 T. J. Carmody, sec. 22, Third Addn. of Taft farm lands. Drk.

Humble O. & R. Co. No. 1 Smith and Talbert, Lot 2, sec. 37. T.D. 4,836 ft.; rng. 7-in. csg.; P.B. 4,825 ft.; perf. csg. 4,820-22 ft.; tstd. 3,300 ft. oil, 400 ft. perf. csg. 4,816-17 ft.; tstd. dry; re-perf. csg.

Starr County

O. C. Borah No. 1 P. G. Garcia, Juan Salinas Sur. S.D. 810 ft.

O. C. Borah No. 2 Martinez, J. Salinas Sur. S.D. 450 ft.

O. C. Borah No. 7 Martinez, Joaquin Salinas Sur. S.D. 370 ft.

J. L. Collins No. 1 Francisco B. Guerra, Santa Cruz Gr. T.D. 6,609 ft.; well blew out; cutting out D.P.

G. E. Dodd No. 1 Wardner, Porc. 84. T.D. 2,164 ft.; 4-in. csg. 2,146 ft.; swbd. dry; S.D.

G. E. Dodd No. 1-A Wood, V. Vela Sur. No. 84. Core sh. 1,500 ft.; no report.

Henshaw-Davis No. 1 Garcia, M. M. Garcia Sur. Cd. oil sd. 2,675-82 ft.; 30-min. D.S.T. 2,672-82 ft.; tstd. 90 ft. of oil; slight show of brksh. wtr.; will run csg.

Sloux Oil Co. No. 7 Ricaby, Porc. 83. R.U.

Sun Oil Co. No. 1 Young, J. Sisneros Sur. No. 79. R.U.

Travis County

I. Ripp No. 1 Thaxton, Santiago De Valle Gr. R.U.

Texas Empire Trading Co. No. 1 E. E. Jourdan, Santigo Del Valle Gr. Drk.

Victoria County

W. V. Bowles No. 2 Robertson, T. C. Burnham Sur. Loc.

Webb County

C. C. Bonner No. 1 Lewis, W. P. Rutledge Sur. 460. Cg. 1,344 ft.

Garrison & Paris No. 1 Benavides, Hale Subd. of M. Arispe Gr., C Blk. 107. Drk.

H. & H. Drlg. Co. No. 1 Laurel Bros., C.C.S.D.&R.G.N.G. Sur. No. 270. Drk.

Willacy County

Magnolia Pet. Co. No. 1 Armendaiz, San Juan DeCarricitos Gr., Sh. 4. 8⅝-in. csg. 9,640 ft.; T.D. 9,960 ft.; set plug 9,593 ft.; W.O.C.

Salvieja Oil Corp. No. 2 Garcia Ld. Co. Blk. 118. T.D. 8,695 ft.

Williamson County

Marion Aldridge No. 1 Kroschewsky. T.D. 1,033 ft.; 7-in. csg. 969 ft.; S.D.

Taylor Ref. Co. No. 1 Ihlenfeldt, Willis West Sur. S.D. 1,700 ft.

Wilson County

Stapper Oil Co. No. 1 J. McDaniel, L. Manchoca Sur. R.U.

Zapata County

R. B. Bryant No. 1 Flores, La. Huerta Sur. T.D. 1,556 ft.; stk. D.P.; jnkd. hole; skd. drk. 45 ft. north; S.D. 2,055 ft.

Guinn Lewis No. 1 Benavides, Fansler and O'Hern Subd. R.U.

EAST TEXAS

(Border counties)

Rodessa—Cass County

R. W. Norton No. 6 Moore, Meyers Sur. Drlg. L. 4,661 ft.

Union Prod. Co. No. 2 Carter et al, Bryant Sur. Drlg. sh.&anhy. 5,369 ft.

Bowie County

King Oil Corp. No. 1 Watts, Geo. Brinlee Sur. Drlg. sh. 4,557 ft.

Harrison County

Ark.-La. Gas Co. No. 1 C. M. Abney, E. Little Sur. Set 7-in. csg. 2,350 ft.; set csg. 4,836 ft.; drlg. sh.&L. 5,025 ft.

Marion County—Rodessa

Arkansas-Louisiana Gas Co. No. 1 Hollands, Hanks Sur. Set 7-in. csg. 6,092 ft.; T.D. 6,131 ft., P.B. D. 6,106 ft.; comp.; 110 B.P.D.; ¼-in. ck.; T.P. 120 lbs.; C.P. 600 lbs.

Ark.-La. Gas Co. No. 3 Holland, Hanks Sur. Drlg. ch. rk. 2,060 ft.

Ark.-La. Gas Co. No. 1 Pitts, C. Lockhart Sur. Hill sd. 5,918-21 ft.; tstd. est. 30,000,000 ft. gas; 300 ft. of fluid in hole; top Dees 6,145 ft.; top Pettit L. 6,550 ft.; top Tr. Pk. 6,725 ft.; set 7-in. csg. 6,250 ft.; perf. 6,148-62 ft.; T.D. 7,070 ft.; perf. 5,930-43 ft.; comp.; 6,500,000 ft. gas, est. 2 B.P.H. dist.; T.P. 2,150 lbs.; C.P. 2,325 lbs.

Cable Tool Drlg. Co. No. 1 Henderson. U. Ewing Sur. Set 5½-in. csg. 6,043 ft.; comp.; 17 B.P.H.; ¾-in. ck.; T.P. 200 lbs.; C.P. 600 lbs.; T.D. 6,059 ft.

Geo. Echols No. 2 Whitfield, Bennington Sur. Comp.; 305 B.P.D.; ¼-in. ck.; 5½-in. csg. 6,070 ft.; T.D. 6,093 ft.; T.P. 300 lbs.; C.P. 700 lbs.

Gulf Oil Corp. No. 4-A Henderson, Bennington Sur. Set 5-in. csg. 6,024 ft.; tstg. 6,025 ft.; perf. 6,010-20 ft.; tstd. S.W.; reperf. 5,990-6,002 ft.; tstd. 3,-250 ft.; comp.; 111 B.P.D.; ¼-in. ck.; flow valves, input pr. 400 lbs.; T.D. 6,025 ft.

Gulf Oil Corp. No. 1 Smith, Hanks Sur. Drlg. sh. 2,912 ft.

Heyser, Heard & Clardy No. 3-B Henderson, U. Ewing Sur. Set 5½-in. 6,038 ft.; T.D. 6,060 ft.

Heyser, Heard & Clardy No. 4-B Henderson, U. Ewing Sur. Set 5½-in. 6,017 ft.; T.D. 6,040 ft.

Holcomb & Thomason No. 2-B Henderson, Ewing Sur. Drlg. L. 3,622 ft.

Hollandsworth Drlg. Co. No. 1 Brantley, Bennington Sur. Drlg. L.&sh. 5,150 ft.

Hollandsworth Drlg. Co. No. 1 Graham, Hanks Sur. Set 5-in. csg. 6,041 ft.; T.D. 6,062 ft.

Ohio Oil Co. No. 2 Moseley, Francis Sur. Drlg. ch. rk. 2,300 ft.

Phillips Pet. Co. No. 1 Beard, Bennington Sur. Cg. 6,005 ft.

Rice Drlg. Co. No. 1 Hale, Hanks Sur. R.U.

Shell Pet. Corp. No. 1 Boykin, Gentry Sur. Set 5-in. csg. 6,084 ft.; perf. 6,-070-79 ft.; T.D. 6,091 ft.

Shell Pet. Corp. No. 1 Goodrow, Hanks Sur. Set 5-in. csg. 6,032 ft.; perf. 6,-008-28 ft.

Shell Pet. Corp. No. 2-B Henderson, Bennington Sur. Drlg. sh. 2,918 ft.

Shell Pet. Corp. No. 2 Schulter, Smith Sur. R.U.

Shell Pet. Corp. No. 1 Whelan, Thos. Gillespie Sur. Set 5½-in. csg. 5,966 ft.; T.D. 5,993 ft.; swbd. S.O.; acdzd. with 2,000 gal.; flwd. 6 B.P.H.; ¼-in. ck., with gas-oil ratio of 18,000 to 1; recmtd. csg. 5,993 ft.; acdzd. 1,500 gal.; installed flow valves; W.O. gauge.

Union Prod. Co. No. 8 Hutchinson, Coy Sur. Drlg. L. 4,028 ft.

Panola County

Mallard & Locke No. 1 W. E. Roller Est., Sullins Sur. Bldg. drk.

Texas Co. No. 1 Claude Adams, T. Cox Sur. T.D. 5,940 ft.; set 9⅝-in. csg.; T.D. 7,369 ft.; fsg. twisted D.S.

Shelby County

Center Oil Co. No. 1 Windham, A. H. English Sur. Set 10-in. csg. 56 ft.

WEST TEXAS WILDCATS

Andrews County

Atlantic Rfg. Co. No. 1 Texas Univ., sec. 26, Blk. 11, University Lands. R.U.R. 200 ft.

J. Donnelly et al No. 1 University, sec. 16, Blk. 14, University Sur. Prep. run Schlumberger; D.&A. 4,703 ft.

H. S. Forgeron No. 1 Lockhart-Brown. Drlg. 4,240 ft.

Perkins, Wright & McMillan No. 1 Cowden. Drlg. 7,416 ft.

Rogers & Rogers No. 1 O. B. Holt, P.S.L. Sur. R.U. pump 4,536 ft.

Seaboard Oil Corp. No. 1 Munger-Nix, sec. 1, Blk. A-4, P.S.L. Sur. Tstg. on pump 5,426 ft.

Seaboard Oil Corp. No. 1 Thornberry, sec. 8, Blk. 42-A, P.S.L. Sur. Drlg. 4,-626 ft.

A. C. Wheeler No. 1 T. M. Gardner, sec. 15, Blk. A-35, P.S.L. Sur. P.B. 4,632 ft.; tstg.

Bailey County

Duffey & Etz No. 1 Enocha, Tract 66, League 182, Floyd Co. School Lands Sur. W.O.C. 4,167 ft.

Brewster County

F. C. Dodson No. 1 Texas American Synd. sec. 66, Blk. 10, G.H.&S.A. Sur. D.&A. 7,785 ft.

Cochran County

Devonian-Honolulu-Cascade No. 1-C-8 Duggan, sec. 8, Oldham C.S.L. Sur. Loc.

Heimerich & Payne No. 1 Westheimer & Daube, Lab. 14, Leg. 147. Drlg. 4,422 ft.

Honolulu Oil Co. No. 1-91 C. S. Dean, League 91, Lipscomb C.S.L. Sur. Drlg. 2,530 ft.

Texas Co. No. 1 Mallett Ld. & Cattle Co., sec. 7, Blk. G, P.S.L. Sur. Drlg. 5,073 ft.

Coke County

H. E. Ogden No. 1 Rawlins, sec. 390, Blk. B-21. W.O.C. 3,212 ft.

Barnett Pet. Co. No. 1 J. R. Mims, sec. 3, Blk. W, T.&P. Sur. W.O.C. 1,635 ft.

Crane County

Gulf Oil Corp. No. 4 McKnight, sec. 3, Blk. B-21, P.S.L. Sur. Drlg.

Magnolia Pet. Co. No. 1 University, sec. 16, Blk. 30, University land, 3½ mi. NW of Church-Fields pool. Drlg. 3,-648 ft.

Crockett County

H. W. Black & Eubank Oil No. 1 University, sec. 13, Blk. 14, University Sur. Drlg. 965 ft.

W. L. Bradley et al No. 1 Hoover, sec. 1, Blk. 1. P.B. 1,430 ft. to shoot.

Choate & Hogan No. 1-H University, Univ. Sur., sec. 14, Blk. 14. Loc.

Choate & Hogan No. 1-J University, sec. 15, Blk. 14, University Sur. Drlg. 1,-235 ft.

Moore Bros. No. 1 Perner, sec. 37, Blk. 2, I.&G.N. Sur. Drlg. 9,086 ft., last report.

Short & Gillette No. 1 J. W. Owens, Jose Zunegas Sur. S.D. 10-in. 393 ft.

W. F. Yates No. 1 Hoover, sec. 6, blk. 1, G.C.&S.F. Sur. S.D.O. 225 ft.

Culberson County

Collins & Brewer No. 2 C. M. Caldwell, sec. 14, Blk. 42, P.S.L. Sur. D.&A. 552 ft.

Harry J. W. Nichaus No. 1 C. M. Caldwell, sec. 15, Blk. 109, P.S.L. Sur. Prep. rng. 10-in. 1,492 ft.

Quito Oil Co. No. 1 Cameron Lbr. Co., sec. 24, Blk. 81, P.S.L. Sur. Spd. and S.D.

Dickens County

J. F. Marrisey No. 1 I. J. McMahan, sec. 319, Blk. 1, H.&G.N. Sur. M.I. larger machine 1,050 ft.

Ector County

Stogner et al No. 1 Hendrick, sec. 4, Blk. 43, T.&P. Sur. Drlg. 2,600 ft.

El Paso County

Tri-State Oil Co. No. 1 Kinkel. C.O. 3,105 ft.

Fisher County

Dibrell & Patton No. 1 J. B. Stribling, sec. 110, Blk. 3, H.&T.C. Sur. Spd. and S.D.

S. & D. Daube and Forrest Dev. Co. No. 1 A. C. Bennett, sec. 51, Blk. 2, H.&T.C. Sur. R.U.R.

Floyd County

Mills Bennett No. 1 T. Montgomery, F. J. Latham Sur., 6 mi. S of Floydada. Drlg. new hole 4,408 ft., last report.

Gaines County

C. M. Cope et al No. 1 Riley, Blk. G, sec. 249, W.H.R.R. Sur. Drlg. plug 3,090 ft.

Eastland Oil Co. No. 1 R. C. Dunbar, sec. 24, Blk. A-12, P.S.L. Sur. Tstg. 4,484 ft.

Finley & Cherry No. 1 P. W. Dalmont, sec. 6, Blk. A-21, P.S.L. Sur. C.O. 4,-783 ft.

M. B. K. Drlg. Co. No. 1 A. L. Wasson sec. 52, Blk. AX, P.S.L. Sur. Prep. treat 4,976 ft.

Riddle & Warr No. 1 J. B. Brown et al, sec. 26, Blk. G, C.&M.R.R. Sur. M.I.M.

Garza County

Gulf Oil Corp. No. 1 Swanson, sec. 25, Blk. 2, H.&G.N. Sur. Drlg. 4,466 ft.

Glasscock County

O. B. Greathouse No. 1 Burns, sec. 221, Blk. 29, W.&N.W. Sur. S.D.R. 20 ft.

Hockley County

Gulf Oil Corp. No. 1 Mallett Ld. & Cattle Co., sec. 6, Blk. X, P.S.L. Sur. P.B. 5,037 ft.; C.O.

Honolulu Oil Co. No. 1-77, Labor 77, League 37, Zavalla Co. Sch. Lds. Comp. 800 B.O.P.D.

Howard County

H. N. Harriss No. 1 Guitar, sec. 17, Blk. A. Bauer & Cockrell Sur. R.U.

Lockhart Oil Co. No. 1 Scott, sec. 86, Blk. 29, W.&N.W. Sur. Prep. shoot 2,-707 ft.

Magnolia Pet. Co. No. 5 O'Daniel, sec. 34, Blk. 30, T.&P. Sur. Loc.

Moore Bros. No. 1 W. P. Edwards, sec. 44 Blk. 30, T.&P. Sur. P.B. 2,920 ft.; shot 600 qts. made 3 B.O.P.D.

T. G. Shaw No. 1 H. N. Wilkerson, sec. 35, Blk. A, Bauer & Cockrell Sur. Loc.

Texas Co. No. 1 H. H. Wilkinson, sec. 32, Blk. 34, T.&P. Sur. S.D.O. 3,505 ft.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ sec. 34, Blk. 74, Twp 6. Drlg. 4,260 ft.

Haymon Krupp No. 1 Briggs, sec. 24, Blk 73, Twp. 7, T.&P. Sur. Drlg. 3,872 ft.; S.O.

Jeff Davis County

Joiner Oil Corp. No. 1 Jones-Coffield Drlg. 3,695 ft.

Kent County

Thad A. Bryant Jr. No. 1 Haggins et al, sec. 118, Blk. 1, H.&G.N. Sur. Bldg. drk.

Thad A. Bryant, Jr., No. 1 House, sec. 10, Blk. 1, H.&G.N. R.R. Sur., 6,000 ft. test. S.D. 200 ft.

Lynn County

John L. Baldridge No. 1 Alma Lbr. Co sec. 151, H.E.&W.T. Sur. Prep. rng. 7-in. 4,450 ft.

Menard County

Forest Dev. Co. No. 1 Corbell, J. H. Gibson Sur. No. 163. Drlg. 1,395 ft.

C. D. Haggerty No. 1 Callon, sec. 36, Jim Franz Sur. S.D. 445 ft.

Hartzell-Nawn & O'Hara No. 1 Wilhelm, sec. 24, Blk. A-1735, Indianola R.R. Sur. Drlg. 563 ft.

Pecos County

Cox & Moore No. 1 White & Baker, sec. 43, Blk. Z, T.C.R.R. Sur. Spd. and S.D.

Ed Fainey No. 1 Trees, sec. 63, Blk. 8, H.&G.N. Sur. Fsg. 2,055 ft.

J. D. Kugle, Jr., No. 1 W. C. Jackson, sec. 120, Blk. 8, H.&G.N. Sur. W.O. 7-in. 2,045 ft.

Carl S. Leidecker No. 1 Iowa Trust, sec. 73, Blk. 10, H.&G.N. Sur. Drlg. 1,170 ft.

Magnolia Pet. Co. No. 1 McKee. Drlg. 5,-842 ft.

E. R. Minshall et al No. 1 Haynie, sec. 28; Blk. 146, T.&St.L. Sur. Drlg. 887 ft.

S. Thompson No. 1 Elsinore Cattle Co., sec. 54, Blk. D, G.C.&S.F. Sur. Drlg. by bailer 7,212 ft.

Trans-Pecos Oil Co. No. 1 Gallagher, T.&P. Sur. S.D.O. 2,240 ft.

Trans-Pecos Oil Co. No. 3-A Papham, G.H.&S.A. Sur. Drlg. 2,240 ft.; last report.

Wilcox O. & G. Co. No. 1 Serf, sec. 27 Blk. 130, T.&St.L. Sur. D.&A. 5,253 ft.

Presidio County

L. C. Brite No. 4 fee, C NW¼ sec. 113, Blk. 12, G.H.&S.A. Sur. S.D.O. 5,427 ft.

Reeves County

Grisham Hunter Corp. & N. A. Grisham No. 1 Geo. Daniel, sec. 40, Blk. 58, T.&P. Sur. Drlg. 2,633 ft.

Ohio Oil Co. No. 1 Papham, sec. 18, Blk 54, T.&P. Sur. C.O. 2,380 ft.; tools free.

Runnels County

Stevens & Glober No. 1 Fowler, sec. 150, E.I.R.R. Sur. S.D. 1,355 ft.

Scurry County

Coffield & Guthrie No. 1 E. E. Spears et al, sec. 130, Blk. 97, H.&T.C. Sur. U.R. 10-in. 556 ft.

Robinson Drlg. Co. No. 1 Martin, sec. 147, H.&T.C. Sur. P.B. 2,500 ft.; S.D.

T. G. Shaw Oil Co. No. 1 First Natl. Bank. Fsg. 2,420 ft. last report.

Sterling County

Loffland Bros. & Moore Bros. No. 1 D. D. Parramore, sec. 23, Blk. 2, H.&T.C. Sur. C.O. over tools 725 ft.

J. W. Sward No. 1 Brennand, sec. 107, Blk. 2, H.&T.C. Sur. Prep. D.D. 968 ft.

Stonewall County

Bert Fields No. 1 J. M. Lee, J. E. Pierson Sur. S.D. rotary 125 ft.

General Crude Oil Co. No. 1 J. D. Smith, sec. 371, Blk. 2, H.&T.C. Sur., 12 mi. N Rotan. Drlg. 3,994 ft.

Swanson & Parriott No. 1 H. T. Carlisle, sec. 293, Blk. D, H.&T.C. Sur. Drlg. 3,-940 ft.

Terrell County

D. & S. Oil Co. No. 1 Sam Bell. S.D. 960 ft., last report.

Terry County

L. E. Hults No. 1 P. J. Ross, sec. 6, Blk. D-14, C.&M.R.R. Sur. R.U.S.T. 4,-749 ft.

Tom Green County

Humble O. & R. Co. No. 1 Lewis & Ward law, sec. 5, Blk. 17, H.&T.C. Sur. Rng. electrical survey 7,586 ft.; last report.

Southern Cross Oil Co. No. 1 J. W. Wilson, sec. 30, Blk. H, A.B.&M. Sur. Loc.

Spinner No. 1 Reed, Mason Ferry Ranch Sur. S.D.O. 4,200 ft.

Upton County

Flippen & Hancock No. 1 Shirk Est., sec. 7, Blk. 3, M.K.&T. Sur. W.O.C. 2,678 ft.; last report.

W. D. Riser et al No. 1 King Ranch Oil & Lignite Co., sec. 8, Blk. 3, M.K.&T. Sur. S.D. 730 ft.

Standard of Texas No. 1-10 University, Univ. Sur., Blk. 14, sec. 10. D.&A. at 1,711 ft.

Val Verde County

J. F. Carter et al No. 1 Seller & Sons, sec. 34, Blk. A, I.&G.N. Sur. Spd. and S.D.

Ward County

Cities Service No. 2 Brandenburg, sec. 4, Blk. 32, H.&T.C. Sur. Prep. run tubing 2,096 ft., last report.

M. J. Delaney No. 1 J. E. Cooper, H.&T.C. Sur. Tstg. 2,092 ft.

J. E. Fitzpatrick et al No. 1 H. B. Carr, sec. 125, Blk. 34, H.&T.C. Sur. S.D.R. 1,325 ft.

J. E. Fitzpatrick et al No. 1 F. K. Dyer, sec. 135, Blk. 34, H.&T.C. Sur. Drlg. 3,650 ft.

Hcas & Downey No. 1 Meyers, sec. 17, Blk. 32, H.&T.C. Sur. C.O. 1,945 ft.

Hoss & Downey No. 1 Ross Avery, sec. 36, Blk. 1, H.&T.C. Sur. S.D. 2,000 ft.

A. E. Lynch No. 1-A Johnson, sec. 8 Blk. 32, H.&T.C. Sur. Comp., 202 bbls. per day.

Mahree No. 1 Wilson, sec. 133, Blk. 34, H.&T.C. Sur. S.D. lost tools at 5,099 ft.

Patillo & Webster No. 1 Johnson. Tstg. 1,990 ft., last report.

O. E. Schkode No. 1 Boogher, sec. 1, Blk. 32, H.&T.C. Sur. Tstg. 278 B.O.P.D.; S.I. storage full 2,078 ft.

Texas Co. No. 1-F Univ., Univ. Sur., Blk. 16, sec. 15. Drlg. 2,492 ft.

L. F. White et al No. 1 Rector-Monroe, E cor. sec. 3, Blk. 1, W.&N.W. Sur. S.D. 4,710 ft.

Winkler County

Ed. L. Gelder No. 1 R. D. Kessler & F. Kessler, sec. 14, Blk. B-3, P.S.L. Sur. Drlg. 2,675 ft.

Yoakum County

Gulf No. 1 J. C. Futch, sec. 796, Blk. D. J. H. Gibson Sur. M.I.C.T. to C.O. 5,170 ft.

Gulf States Oil No. 1 Graham, sec. 267, Blk. 3, J.H. Gibson Sur. Drlg. 5,088 ft.

Helmerich & Payne No. 1 S. O'Dowd, sec. 896, Blk. D, J. H. Gibson Sur. S.I. for storage 4,951 ft.

E. C. TEXAS WILDCATS

Angelina County

J. C. Bonham No. 2 Cameron Lbr. Co., E. Miller Sur., 3 mi. SE of Zavalla. Cg. 2,026 ft.; last report.

J. C. Bonham No. 3 Cameron Lbr. Co., E. Miller Sur., 3 mi. SE of Zavalla. D.&A. at 621 ft.

J. C. Bonham No. 4 Cameron Lbr. Co., E. Miller Sur., 3 mi. SE of Zavalla. Abd.

J. C. Bonham No. 5 Cameron Lbr. Co., E. Miller Sur., S of No. 2 well. Abd.

Ginter Bros. No. 4 Copes Heirs, J. Morin Sur., 3 mi. S of Dibol. Drk.

B. L. Hoffman No. 1 Jones, W. W. Hales Sur., 8 mi. SW of Huntington. S.D. 30 ft.

Camp County

W. C. McGlothlin No. 1 Joe Venters. S. Wright Sur., 3 mi. SE of Leesburgh. Loc.

Cherokee County

Bunn Drlg. Co. No. 1 C. Bounds, W. H. Walters Sur., 2½ mi. SE of Lone Star. Tstg. 4,015 ft.

Commerade Oil No. 1 J. M. King, W. Bartie Sur., 5 mi. W of Rusk. Cg. 5,023 ft.

Dallas County

Markraley No. 1 R. S. Morris, C. Gibbs Sur., 2 mi. S of Grand Prairie. Pits.

Plaza Oil Co. No. 1 Davidson, Marchants Sur., 1 mi. NW of Seagoville. S.D. 2,257 ft.

Gregg County

Humble O. & R. Co. & Gulf O. Corp. No. 1 E. Robertson, M. Mann Sur., 2½ mi. SW of Longview Trinity test. El. 279 ft.; drlg. 10,002 ft.

Henderson County

Hager & Jones No. 1 Coleman & Faulk, R. S. Rayburn Sur., 2 mi. NW of La Rue. Drk.

Jones-Mallory No. 1 A. Mallory, T. S. Mitchell Sur., 6 mi. SW of Mabank. S.D. 107 ft.

Texas Co. No. 1 I. A. Nolan Parsons Sur., 1 mi. SW of Flag Lake. Drlg. 50 ft.

Tyler & Smith No. 1 Phoenix Rity. Co., A. L. Adams Sur., 4 mi. S of Mabank. Loc.

Houston County

Peyton Bros. No. 1 J. N. Daniels, J. M. Procella Sur., ½ mi. N of Procella. U.R. 5,960 ft.

Sun Oil Co. No. 1 R. S. and H. H. Daily, J. G. Thompson Sur., 3 mi. SE of Navarro Crossing. W.O.C. 1,800 ft.

Limestone County

J. S. Cosden, Jr. No. 1 J. J. Bower, J. Breeding Sur., near Prairie Hill. Drlg. 922 ft.

McLennan County

Chapman & Kahn No. 1 Carl Hartsman, B. C. Walters Sur., 1½ mi. S of Mc-Gregor. S.D. 1,326 ft.

Kilgore No. 1 J. M. Marrs, J. S. Rutland Sur., 2 mi. S of Bosque. Drlg. 1,425 ft.

Lisle Steele No. 1 C. H. Cherry, M. Martinez Sur., 4½ mi. SE of Waco. Drlg. 40 ft.

Russell & Thompson No. 1 L. L. Phillips, C. O. Campo Sur., 4 mi. S of Waco. Drlg. 225 ft.

Navarro County

G. W. Gibson No. 2 Dr. J. H. Edgar, M. Meazel Sur., 3½ mi. S of Richland. D.&A. 2,200 ft.

G. W. Gibson No. 3 J. H. Edgar, M. Meazel Sur., 2½ mi. S of Richland. Pmp. 11 B.O.P.D.

Mrs. Jane Robinson No. 1 Fortson Bros., Eli Smith Sur., 5 mi. NE Corsicana. U.R. 2,670 ft.

Red River County

Daniels et al No. 1 J. J. Gaston, J. Guest Sur., 2 mi. S of Detroit. Bldg. drk.

Texas Trading Co. No. 2 So. Pine Lbr. Co., D. D. Bruton Sur., 12 mi. N of Clarksville. R.U.

Walters et al No. 1 Phamplin, W. Moore Sur., 3 mi. SE of Kanawha in NW part of county. W.O.C. 68 ft.

All Sizes of MAC BALLS & SEATS in STEEL . . . . BRASS BRONZE AND STAINLESS

Ask for complete details and price list.

McGREGOR WORKING BARREL COMPANY

Bradford, Pa., U.S.A.

Russell County

J. W. Merrick et al No. 1 Peter Tipps, T. Uzzell Sur., 6 mi. S of East Texas field and 5 mi. N of New Salem. Deepening from 3,888 ft.

Smith County

H. L. Hunt et al No. 1 S. H. Bradly, T. P. Payne Sur., 10 mi. E of Tyler at Chappel Hill. Cg. 7,426 ft.

Trinity County

Bilinoski et al No. 1 Trinity State Bnk., B. F. Wright Sur., 2 mi. S of Trinity. D.&A. 3,791 ft.

Boone & Jordan No. 1 U. S. Crouch, Joel Clapp Sur., 7 mi. N of Trinity. Drk.

Gassage et al No. 1 Mrs. C. H. Elliot, Joel Clapp Sur., 6½ mi. N of Trinity. Drk.

Upshur County

E. J. Dupree No. 1 W. A. Lawrence, R. Polly Sur., 4 mi. S of Gilmer. P.B. 3,830 ft.

Tom Hunter and American Liberty No. 1 J. P. Carter, J. H. Fields Sur. Drlg. 8,823 ft.

Van Zandt County

Hines & Hancock No. 1 J. L. Chitty, N. Neal Sur., 7 mi. SW of Canton. O.W. T.D. 2,180 ft.; R.U. to deepen.

NORTH TEXAS WILDCATS

Archer County

Adams O. & G. Co. No. 1 C. Moer, sec. 21, C.&P. Sur., Blk. 3. Drlg. S.S.O. 4,152-65 ft.

Burns & Omohundro No. 1 Dr. A. B. Edwards, Blk. 44, L. P. Hunt Subd., 5,300-ft. test. Loc.

Camp Drlg. Co. No. 1 H. Harmel, sec. 2,460, T.E.&L. Sur., 4,000-ft. test. Drlg. 2,770 ft.

Fain-McGaha Oil Corp. No. 1 R. W. Fuller, Blk. 1, H.&T.C. Sur., 6,000-ft. test. Drlg. 4,475 ft.

Helmerich & Payne et al No. 2 L. F. Wilson, Blk. 25, A.T.N.C.L. Sur. Testing at 5,105-16 ft.

Hines & Hancock No. 1 J. L. Anderson, Blk. 23, Anderson ranch, 4,000-ft. test. Drlg. 2,010 ft.

Hines & Hancock No. 1 W. R. Hammond, H. Corzine Sur. A-56. Drlg. 1,120 ft.

Kilgore-Luginbyhl & Johnson No. 1 Ford, T. M. Cecil Sur. A-982. 4,500-ft. test: S.D. 4,067 ft.

Thos. A. Jirik No. 1 Kunkel, sec. 2, P.R.R. Sur. A-1186. Drlg. 200 ft.

Lacreta Pet. Co. No. 1 L. H. Farmer, W. C. Winters Sur. A-663, 4,000-ft. test. Drk.

Reno Oil Co. No. 10 H. Wilmut A, sec. 4, S.P.R.R. Sur. A-1044. S.S.O. 3,760-66 ft.; 6⅝-in. 3,750 ft.; W.O.C.

Shappell Oil Co. No. 1 Grace Bell, Blk. 27, Clark & Plumb Sur. Drlg. 1,600 ft.

C. W. Snoddy No. 1 Jones, T. Freeman Sur. A-134. Testing S.S.O. 4,079-97 ft.

Thurman & Lipscomb No. 1 L. F. Wilson, Blk. 22, A.T.N.C.L. Sur., 4,000-ft. test. 6⅝-in. 3,944 ft.; running tubing.

Baylor County

Riddels, Pipes & Holcomb No. 1 W. H. Nichols, Jr., sec. 117, B.B.B.&C. Sur. A-85. Loc.

Wilcox O. & G. Co. No. 1 W. H. Portwood, sec. 3144, T.E.&L. Sur. Drk.

Clay County

Walter Gant No. 1 Bryant Edwards S. C. Beldon Sur. A-12, 6,000-ft. test. S.D. 4,713 ft.

Healdton O. & G. Co. No. 1 Wallace, Belcher Subd. Drlg. 5,660 ft.

Joe Rogers No. 1 C. P. Davis, Blk. 6, Montague Co. School Land Sur. A-307, 4,500-ft. test. Spdg.

Wood Pet. & Roy. Corp. No. 1 I. H Kempner, Blk. 44, Bosque Co. Sch. Ld. Sur. A-10. S.D. 2,020 ft.

Cooke County

Sinclair Prairie Oil Co. No. 1 J. M. Best, T. Toby Sur. A-1054. Drlg. 4,160 ft.

Sunset Oil Co. No. 1 J. T. Donald, S.P. R.R. Sur. A-971 3,500-ft. test; S.S.O. 2,473-94 ft.; S.D.O.

Foard County

Texas Co. No. 16 Johnson, sec. 37, S.P. R.R. Sur. Gas sd. 3,538-58 ft.; 6⅝-in. 3,530 ft.

Jack County

Noah Daves No. 1 K. D. Baker, sec. 2709, T.E.&L. Sur., 4,000-ft. test. Drlg. 1,600 ft.

Harper Pet. Co. 1 Mary E. Norman. A. Pearson Sur. A-1304. O.S. 1,937-38 ft.; testing.

R. S. Luke No. 1 H. M. Simpson, J. W. Abbey Sur. A-11; 3,250-ft. test. Drlg. 3,095 ft.

Montague County

H. H. Powell No. 1 Arch Durham, W. J. Wagoner Sur. A-936. S.D. 822 ft.

J. W. Sorrell et al No. 1 J. E. Walthall Sam H. Smith Sur. A-662. S.D.O. 3,725 ft.

Wichita County

C. W. Boller No. 1 S. Y. Collins, Charles Roberts Sur. A-540. 6⅝-in. 3,855 ft.; brkn. sdy. L. and O.S. 3,860-3,900 ft.; testing.

Geo. W. Cooper No. 1 Parker, sec. 13, H.&G.N. Sur. Drlg. 3,010 ft.

E. J. Stump No. 1 M. P. Bishop, L. Netherly Sur. A-240. S.D.O.: S.L. 3,885-3,907 ft.; shot 350 qts. 3,884-3,970 ft.; flowed 10 min. after shot and bridged; testing.

E. J. Stump No. 1 F. C. Dodson, J. Deck Sur. A-52. R.U.R.

Wilbarger County

Republic Nat. Gas Co. No. 1 W. T. Waggoner, sec. 2, H.&T.C. Sur., Blk. 4, 4,000-ft. test. Drlg. 2,475 ft.

Young County

Cosden Oil Co. No. 1 Price, Y.C.S.L. Sur. No. A-1285. Drlg. 1,955 ft.

Cosden Pet. Corp. No. 1 D. R. Sewell B, J. Bray Sur. A-1949. Drlg. 2,115 ft.

Howard Pet. Co. No. 1 G. R. Stewart, sec. 84, C.S.L. Sur. Drlg. 5,590 ft.

Danciger O. & R. Co. No. 1 H. C. Shanafelt, sec. 11, A.B.&M. Sur. A-1369. S.S. O. 2,776-81 ft. Drlg. 3,205 ft.

Fain-McGaha No. 1 Logan, Blk. 18, Holeman Sur. Drlg. 800 ft.

Kadane-Griffith No. 1 Sanders, sec. 1989, T.E.&L. Sur. Drlg. 4,260 ft.

A. N. Munhall No. 1 Ed Johnson, A. McLennan Sur. A-185. 6⅝-in. 3,935 ft.;S.L. 3,990-4,350 ft.; testing.

RANGER (CENTRAL TEXAS) DISTRICT

Callahan County

Cooper, Weeks & Hughes No. 1 C. D. Straley, 660 ft. from W L., 1,880 ft. from N L, sec. 370, Geo. W. Denton Sur. Ordovician test; drlg. 2,700 ft.

Joe Gallagher No. 1 W. T. Harris, 200 ft. from S line, 1,050 ft. from E line sec. 347, G. W. Denton Sur. 2,000-ft. test, 5 mi. N Oplin. M.I.M.

J. H. Howell No. 1 E. I. Vestal, 1,149 ft. E line, 1,000 ft. N line, Jesse Dyson Sur., 2 mi. NE Cross Plains, rotary to 4,000 ft. Surf. to 100 ft.; S.D. at 600 ft.

J. C. Jackson et al No. 1 Thompson, 2 mi S. Eula, sec. 30, B.B.B.&C. Sur. S.D 1,803 ft.; drlg. 2,390 ft.

Petroleum Drlg. Co. No. 1 Cook & Jordan, 760 ft. from E L, 1,838 ft. from N L, sec. 350, Geo. Hancock Sur. Ordovician. R.U.R.

Wittmer Oil & Gas Properties, Inc., No. 1 R. D. Williams et al, 300 ft. from N line, 467 ft. from W line sec. 2,269, T.E.&L. Sur., 2 mi. NE Putnam, 4,500-ft. test. Set 12½-in. at 1,048 ft.; show oil 1,795-1,803 ft.; set 10-in. 2,556 ft.; drlg. 3,350 ft.

Coleman County

Anzac Oil Corp. et al No. 1 Sparkman, Samuel Crooks Sur. Drlg. 1,599 ft.

Anzac Oil Corp. No. 1 Burk, A. Williams Sur. Drlg. 55 ft.

S. M. Devine et al No. 1 Masterson, 2 mi. W of Burkett, Asa Wickson Sur. Drlg. 1,837 ft.

Garrett Oil Co. No. 1 W. S. Smith et al., 4 mi. SE Coleman, J. Thiele Sur. 2,300-ft. test; T.D. 2,035 ft., show gas; set csg. and tstg.

Comanche County

N. D. Gallagher et al No. 1 Mrs. B. I. Terry, Desdemona pool, N. H. Kuykendall Sur. S.O. in Ellenburger; 5 gal. sulfur and salt water on D.S. test; S.D.O. 4,978 ft.

Eastland County

Dobbs Oil Co. No. 1 Greer, J. E. Hardy Sur., Ellenburger test. Drk.

Hayner, Reaves & Hose No. 1 P. L. Larkin, 3 mi. NW Rising Star, 912 ft. from W line, 546 ft. from S line, NW¼, sec. 40-2, E.T.R.R. Sur. S.O. 2,525-53 ft. and 2,574-95 ft.; drlg. 2,840 ft.

Neil A. Moore No. 7 Holcomb Heirs, 970 ft. from W line and 600 ft. from N line, SW¼ 1-4, H.&T.C. Sur. Loc.

Fisher County

Forest Dev. Corp. & Daube No. 1 L. G. Bennett, 660 ft. from N & E lines, sec. 51-3, H.&T.C. Sur. Rotary to 4,500 ft.; 3 mi. SW of Rotan. Rigging.

Owens-Snebold & A. C. Varner No. 1 J. H. Milsap, 3,500-ft. wildcat, 2 mi. NW McCaulley, 330 SL 330 WL, sec. 61-2, H.&T.C. Sur. Drlg. 1,230 ft.

Tom C. Patton, Inc. No. 1 John B. Stribling, 660 ft. from S and E lines, sec. 110-3, H.&T.C. Sur. Spd. to 100 ft., S.D.

Shell Pet. Corp. Corp. No. 1 J. H. Vaughn, 330 ft. from N and E lines, sec. 20s-3, H.&T.C. Sur., 4,000-ft. test.

Haskell County

Fain-McGaha Oil Corp. No. 1 T. G. Hendrick, C W½ sec. 104, Indianola Ry. Sur. Set 150 ft. of 12½-in. S.S.G. 1,620-30 ft.; drlg. 2,100 ft.

J. W. and A. E. McMillan No. 1 A. E. Pardue, 440 ft. from N and W lines, S½ M. Collum Sur. No. 4 A-685. Rotary to 3,500 ft.; oil 2,810-54 ft.; cored 2,835-54 ft.; set 6-in. to T.D. and cmtd. 125 sacks; shot 39 perf. from 2,810-44 ft.; wtr.; shot 44 perf. 2,795 to 2,815 ft., filled 375 ft. in 15 min., set packer to cmt. off bottom wtr.; W.O.C.

Jones County

Brown Eagle & C. J. Kleiner No. 1 Sullivan Heirs, 330 ft. S&E of 200-ac. tract in S. Andrews Sur. 191. Drlg. 1,595 ft.

Mack Hayes and Montour Oil Co. No. 1 Chittenden, 7 mi. SE Hamlin, Subd. 18 McMullen & McGloin Sur. 337. Oil 3,004-22 ft., T.D.; made 5-min. head of 40 bbls.; pumped 144 B.O. in 8 hrs.; prep. to cmt. 6-in. at 2,993 ft. for comp.

L. A. Hedrick No. 1 W. D. Baker, 220 ft. from N&W lines 3½ NE¼ sec. 36-O.A.L. U.R. 6-in. 1,820 ft.

Humble No. 1 Riley Horton, 330 ft. from N line, 330 ft. from E line, sec. 40-18-T.&P. Sur. Spudded.

Humble No. 1 R. B. Spencer, 330 ft. from S and E lines, NE¼ sec. 195, B.B.B.&C. Sur., West Avoca outpost. Flowed 138 bbls. per hr. 3,192-3,218 ft.; acid. 1,000 gal.; 532 bbls. in 5 hrs.; 2 per cent wtr.

Iron Mountain No. 1 D. J. Herbst, 5 mi. E Hamlin, 330 ft. from N and E Sub. 18, Austin Williams Sur. 339. Set 10-in 2,245 ft.; wtr. 2,900-05 ft.; fsg. 3,070 ft.

F. M. Loop No. 1 W. T. Young, 330 ft. from N line, 253 ft. from E. L. Young 276-ac., D. Bustillos Sur. 189. Loc.

F. W. Martin No. 1 B. N. Herndon, 330 ft. from S and W of NW sec. 1, M.E.&P. Sur. S.D. 2,700 ft.

F. W. Merrick et al No. 1 C. A. Cox, cent. Cox 119-ac. tr., J. H. Hughes Sur. No. 201. Sho. O.&W. 2,322-28 ft.; U.R. 6-in.

Oil States Exploration No. 1 J. E. Sellers, 100 ft. from S line, 330 ft. from W line, S. Andrews Sur. 191. M.I.M.

B. H. Roth No. 1 D. A. Kinney, 4,000-ft. test, 330 ft. from S and E of NW sec. 7-4, H.&T.C. Sur. Abnd. 4,005 ft., T.D.

Shaheen Oil Co. and Big Six No. 1 P. L. Telford, 220 ft. N and W lines, E½ SW¼ sec. 49-15, T.&P. Sur. Fsg. 1,675 ft.

Jay Simmons No. 1 W. T. Young, 302 ft. from S, 342 ft. from E, 37½-a. lease, D. Bustillos Sur. 189. Abnd. 2,020 ft., T.D.

W. L. Snoddy & C. C. Dodson No. 1 C. L. Steffens et al, 220 ft. from S and W lines SW¼ NE¼ sec. 32-15, T.&P. Sur. Loc.

Stanton & Miller No. 1 Gaither, 4½ mi. N of Anson, sec. 38, B.B.B.&C. Sur. S.D. 2,180 ft.

Ungren & Frazier No. 1 W. E. Fellows, 990 ft. from N line, 330 ft. from E line, S½ sec. 25-15, T.&P. Sur. Drlg. 117 ft.

Joe A. Worsham et al No. 1 J. H. Commons, 330 ft. from E line, S½ E 80-ac., Subdiv. 8, A. W. Hill Sur. No. 4. U.R. 6-in. to 2,900 ft.

Nolan County

Hantho-Nelson, Inc., No. 1 J. H. Withers, C SW¼ sec. 65-21, T.&P. Sur. Wildcat to drill 4,000 ft. Spd. to 200 ft. W.O. rotary.

Shackelford County

Danciger No. 3 J. E. McCown, 300 ft. from N and E lines, S½ SE¼ sec. 158, B.B.B. &C. Sur. Drlg. 2,100 ft.

Joe DeGrazier No. 1 Harbough, E cen. part of county, sec. 1,563, T.E.&L. Sur. 4,500-ft. test; H.F.W. 2,185-95 ft.; drlg. 2,600 ft.

J. G. Hammond No. 1 Coker, 1,620 ft. from S line and 1,020 ft. from W line, sec. 159, B.B.B.&C. Sur. Drlg. 750 ft.

Ungren & Frazier No. 1 J. S. McKeever, 306 ft. from W line, 354 ft. from N line, NW¼ SW ¼ sec. 14-3, H.&T.C. Sur. 3,500-ft. test.; gas at 1,475 and 1,492 ft.; set 10-in. 1,539 ft.; est. 100,000 ft. gas 1,745 ft.; set 10-in. to 1,907 ft.; U.R. 8-in. at 2,440 ft.

Stephens County

Danciger Oil Ref. Co. No. 1 Mrs. Aileen Copeland, 8 mi. SE Ivan, 1,196 ft. from E line and 350 ft. from S line of sec. 1, M.E.P.&P. Sur. P.B. to 3,304-55 ft.; shot 40 qts.; to acidize; abnd.

Graham, Hafner, Lane & Inman No. 1 J. N. Yocum, 5 mi. SE of Frankell, 250 ft. from N and E lines of farm or approx. 2,525 ft. from E line and 1,400 ft. from S line of John R. Carter Sur. Trt. 1,000 gal acid 3,575-90 ft.; est. 25-50 bbls. per day; drlg. 3,455 ft.

Lone Star Gas Co. No. 5 R. W. Brooks, 400 ft. E and S of C of sec. 54-7, T.&P. Sur. Ellenburger test 2½ mi. N of Van Parmer pool. Drlg. 1,700 ft.

G. Willard Rich No. 1 J. W. Andrews, 330 ft. W line, 450 ft. S line, NW¼ sec. 39-7, T.&P. Sur. Set 12½-in. at 1,620 ft.; drlg. 3,300 ft.

Stonewall County

Bert Fields No. 1 R. P. Pierson, C of E 80-ac., E. A. & S. M. Lee Sur. Abst. 817. Loc.

General Crude Oil Co. No. 1 J. D. Smith, SW cor. county, 330 ft. from S and E lines of sec. 371, H.&T.C. Sur., Blk. 2. Set 13⅜-in. 2,119 ft.; set 10-in. at 3,508 ft.; cmt. 150 sacks; S.S.O. at 3,970 ft.; set 8-in.; fsg. bit at 3,994 ft.; H.F.W.

F. B. Parriott No. 1 H. T. Carlile, 330 ft. from S line, 990 ft. from E line, SW¼ NE¼ sec. 293, Blk. D, H.&T.C. Sur., rotary to 5,500 ft., 6 mi. NW of Swenson. Set 8¼-in. at 3,345 ft.; set 6-in. to 3,896 ft., T.D.

Taylor County

Bert Fields et al No. 1 Sears, sec. 223, Blk. 64, H.&T.C. Sur. S.D.O. 3,606 ft., T.D.

Lewis Production No. 1 L. Henslee, 330 ft. from E L of 234-ac. tract in J. A. Nabors Sur. No. 10 and sec. 27-17, T.&P. Sur., 4 mi. E of Merkel. Loc.

Wichita Prod. Co. No. 1 J. H. Parramore, 592 ft. from E line, 400 ft. from S line, SW¼ sec. 81-14, T.&P. Sur. Drlg. 1,940 ft.

Throckmorton County

Jones & Stasney No. 1 C. T. Brockman, 330 ft. S line, 330 E line sec. 95, Comanche Indian Sur. Est. 5 to 10 million ft. gas 1,434-48 ft.; burned rig.

Morris & Spoonts No. 1 Alden Bros., NW cor. county, 1,350 ft. from E line and 5,210 ft. from S line of Raymond Sanches Sur. A-248. Drlg. 1,178 ft.

White & Duncan No. 1 Reynolds Cattle Co., 330 ft. from S and W lines, NE¼ sec. 83, Comanche Indian Reservation. Set 10-in. at 1,405 ft.

Henry Zweifel No. 1 J. H. Lee, 4 mi. NE of Woodson, 930 ft. from E line and 2,011 ft. from S line of J. A. George Sur. Cg. 2,998 ft.

East Texas Fields

(Continued from Page 327)

feet, 248 bbls. Kimmell Lee & Co. No. 2 Mrs. L. Firestone, 1,095-1,118 feet, 220 bbls.; No. 3 Mrs. L. Firestone, 1,108-1,117 feet, 50 bbls.; No. 5 Mrs. L. Firestone, 1,115 feet, dry. Loesche-Gorman No. 4 L. Thornberry, 1,085-1,115 feet, 238 bbls.

Cooke County

Pace Petroleum Co. No. 1 J. L. Welsh, 1,190-1,202 feet, 110 bbls. A. D. Robinson No. 15 J. H. Otto A, 877-87 feet, 100 bbls. Schermerhorn Oil Co. No. 14 M. Kessler, 1,300-1,400 feet, 81 bbls. Trumter Oil Co. No. 12 G. T. Andress, 755-774 feet, 60 bbls.; No. 13 G. T. Andress, 760-88 feet, 12 bbls.

Wilbarger County

Lloyd H. Brown No. 1 W. T. Waggoner, 4,266 feet, dry. N. Gilbert No. 1 M. E. McGill and others, 3,960 feet, dry. Golding & Cochran No. 1 W. T. Waggoner S, 1,534-45 feet, 90 bbls. King Oil Co. No. 2 R. L. Castleberry, 2,187-2,206 feet, 75 bbls. Phillips Petroleum Co. No. 201 W. T. Waggoner, 3,012-18 feet, 700 bbls.

Denton County

Bruce Lee No. 1 Boyles B, 2,330 feet, dry.

Central West Fields

(Continued from Page 323)

at 1,319 feet. Joel Bailey No. 3 W. B. Gibson, 5 bbls., sand at 331-35 feet, shot with 60 quarts, total depth 357 feet, completed.

EASTERN KENTUCKY

ASHLAND, Ky., May 9.—One good completion, two dry holes and one well in which drilling is being continued after good showing are included in this week's report of operations in the Eastern Kentucky field.

McCoun & Wissing drilled a dry hole in No. 1 Lawrence Smith on Little Sinking in the Big Sinking district of Lee County. Amp. Burnett got a dry hole in No. 1 Day Lumber & Coal Co. land on Log Fork of Walkers Creek in the Hell Creek district of Lee County.

Jim Hollon is going on to the next sand in No. 1 Dewey Ross about 2 miles east of Hazel Green in the Stillwater district of Wolfe County. This well came in at 1,868 feet with about 10 bbls. daily of a fine grade of oil; going a little deeper a gas production of about 10,000 feet daily was brought in. However, it was decided to go still deeper.

The Kentucky-West Virginia Gas Co. has completed No. 5238 M. M. Pratt land, on Coldwater Fork in Martin County, at a total depth of 2,416 feet, in shale. The well has a daily production of 431,000 feet of gas.

Buck & Stoddard Enters Steel Oil-Well Derrick Business

Buck & Stoddard, Inc., one of the oldest supply companies on the Pacific Coast, has entered the steel oil-well derrick business. L. A. Rawson, formerly vice president and manager of the structural division of Emsco Derrick & Equipment Co., will be in charge of this new activity. In cooperation with the engineering and research staffs of the Consolidated Steel Corp. he has evolved what is said to be a derrick of advanced design which Buck & Stoddard is placing on the market. The new derrick will be fabricated in the 75-acre plant of Consolidated Steel Corp.'s Los Angeles plant.

L. A. Rawson *C. W. Lord* *Reese Taylor*

Mr. Rawson, with 15 years' experience in oil fields here and abroad, has invented numerous derrick construction details and he has developed ideas which will be incorporated in the new line of derricks. Clifford W. Lord, formerly head of Bolsa Chica Oil Co., is vice president of Buck & Stoddard. Reese Taylor, president of Consolidated Steel Corp., is widely known in the manufacturing world.

Lewis Bought by Lane-Wells

Purchase of M. J. Lewis Oil Well Service Co. of Houston, Tex., has been announced by Walter Wells, president of Lane-Wells Co. The Lewis organization has been connected for years with the development of directional drilling appliances in the Mid-Continent and Gulf Coast areas. According to Mr. Wells, the purchase included Lewis kunckle-joint and all tools, subs, reamers, and accessory equipment, as well as field trucks and automobiles. The personnel of seven trained field crews will be retained. Mr. Wells said acquisition of the Lewis organization, with the products it has established in the field, strengthens the Lane-Wells oil well survey division, which now is in a position to offer not only magnetic single-shot, inclinometer, and orienting surveys, but also directional drilling. Lane-Wells headquarters in Texas are at 2002 Wayside Drive, Houston; in the Mid-Continent, at 2 Northwest Tenth Street, Oklahoma City, Okla.

Patterson-Ballagh Corp., Ltd., 1900 East Sixty-fifth Street, Los Angeles, Calif., is sending on request a two-color wall chart showing wells of the world drilled below 10,000 feet.

In South America for Portable Rig

O. D. "Pete" Small, special representative for Portable Rig Co., of Houston, Tex., making an eight-month tour of South American and Caribbean fields, recently left Santiago, Chile, for Buenos Aires, which point he is using as a working base. Mr. Small spent a month in Trinidad, B. W. I. He proceeded from there to Caripete, in eastern Venezuela, and thence to Maracaibo. From there he traveled down the Magdalena River into Colombia, calling at Bogota and Barianquilla. Next came Cristobal, Panama, from which point he flew to Guayaquil, Ecuador, thence to Talara and Lima, Peru, and on to Santiago. From Buenos Aires, Mr. Small will cover the Argentina fields and Patagonia. En route home he will cover Uruguay and Paraguay, make a stopover at Rio de Janiero, and again will stop off at Port of Spain, Trinidad.

Bert Powell Is Speaker

Bert Powell, news editor of Caterpillar Tractor Co., Peoria, Ill., will address the Tulsa Advertising Federation weekly luncheon next Monday, May 16, in the Tulsa Building, according to announcement by Oscar Payne, chairman of programs. Mr. Powell's subject, "Producing Profitable Publicity," is one of wide interest to industrial advertisers. The federation has invited all visiting advertising men and manufacturers interested in this subject to attend.

Atlas Store in Stillwater

A store and service department have been established at Stillwater by Atlas Supply Co., bringing another Oklahoma town into the growing list of supply store points. From Stillwater the company will serve operators in the areas of Enid, Waukomis, Orlando, Lucien, Lovell, Perry, Billings, Morrison, Covington, Yale, Oilton, Cushing, Ripley, Perkins, Langston, Coyle and Crescent. F. E. Maxwell, located in Oklahoma City, will be district manager in charge of the Stillwater store. J. H. Muir, located at the Blackwell store for several years, will be manager at Stillwater.

F. E. Maxwell *J. H. Muir*

Funsten Made Sales Manager

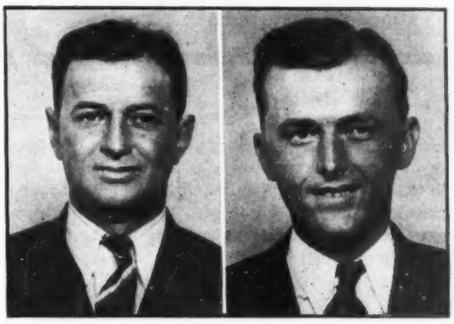
S. R. Funsten, manager of the technical division of Filtrol Corp. since 1935, has been appointed manager of sales, with headquarters in the general sales office, Los Angeles, Calif. Mr. Funsten's experience has been chiefly in the technical development and manufacture of petroleum products. He had received his master degree in chemistry from the University of Virginia in 1917 when he enlisted in the Chemical Warfare Service of the United States Army. Mustered out as a lieutenant in 1919, he entered the service of the Atlantic Refining Co., occupying various positions in the Philadelphia refinery, including that of assistant superintendent of the lubricating department. He became manager of the technical division of Attapulgus Clay Co. in 1932, remaining with that organization till he joined Filtrol.

Heads New Sales Division

Announcement of a new division to handle the sale of rubberlike materials and synthetics, to be headed by Dr. H. E. Fritz, has been made by the B. F. Goodrich Co., Akron, Ohio. Doctor Fritz, identified with Goodrich for 13 years, has been in charge of the sale and development of Keroseal, a rubberlike synthetic material now being used in various industries.

New Welding Supply House Is to Handle Harnischfeger Line

The Harnischfeger Corp., of Milwaukee, Wis., has appointed United Welding Supply Co. sales agent for Harnischfeger welding equipment, including P&H-Hansen arc welders and Smootharc welding electrodes. The newly organized United Welding Supply Co., under the direction of D. "Burk" Denny and J. M. "Dick" Muckelray, is located at 3118 Harrisburg Boulevard in Houston, Tex. Both Mr. Denny and Mr. Muckelray were formerly with the Big Three Welding Equipment Co., Houston, and have a wide acquaintance among welding operators in the Southwest. The United Welding Supply Co. also handles Meco welding and cutting equipment.



D. Denny *J. M. Muckelray*

Bethlehem in New Field

Bethlehem Steel has announced its entrance into the manufacture and sale of seamless steel oil-well casing and tubing. At the same time it announced its intention of making Houston, Tex., the point at which it will carry an adequate mill stock to take care of the needs of the oil industry of the Southwest. This is the first mill stock of seamless pipe to be established in the Gulf Coast area, enabling oil companies to procure mill shipments of pipe to practically any part of Texas and Louisiana within 24 hours, and other points in the Southwest within a few days. A little over a year ago, when Bethlehem purchased Taubman Supply Corp., it acquired Taubman's property at 7100 Clinton Drive, Houston. Additional land has been purchased so that the company now has 17 acres. Facilities also have been enlarged. The new mill stock will be distributed by Bethlehem Supply Corp., a subsidiary of Bethlehem Steel.

Supply House Offers Magic

Through the courtesy of Sonken-Galamba Supply Co., Jack Gwynne & Co., internationally famous magicians who have been appearing in the Empire room at the Palmer House, Chicago, will perform twice a night in the Marine dining room of the Mayo Hotel, Tulsa, during the International Petroleum Exposition.

Whenthoff Joins Tube-Turns

W. B. Whenthoff, formerly with the Big Three Welding Equipment Co. of Tulsa and well known among oil men throughout the Mid-Continent, has joined the sales organization of Tube-Turns, Inc., as district manager in the Mid-Continent territory. Mr. Whenthoff has had wide experience in welding operations of all kinds and is said to be especially familiar with welding problems in connection with piping construction and design, and thus qualified to discuss problems.

PERSONAL

RENE BERG, general manager of Société René Berg, Paris, arrived on the Normandie in New York, and is staying in that city, attending to business matters, before going to Tulsa for the International Petroleum Exposition. He will be the official delegate at the exposition for the Association Française des Techniciens du Pétrole.

FRANK A. MORGAN, elected vice president of the Richfield Oil Corporation, joined the Rio Grande Oil Company as chief geologist in 1929 and subsequently became vice president and a member of the board of directors. Upon the reorganization of Richfield and its merger with Rio Grande in March, 1937, Mr. Morgan continued with the successor company. He was born in Sonora, Calif., in 1898, and graduated in mining and geology from the University of California.

DANIEL C. JACKLING, president of the American Institute of Mining and Metallurgical Engineers, was scheduled to arrive in Tulsa Thursday of this week in his private car, accompanied by other distinguished engineers, and to be honor guest at the annual president's dinner meeting of the Mid-Continent section of the institute. Mr. Jackling, a graduate of the Missouri School of Mines, is being accompanied by the following well-known engineers in a tour of section meetings: A. B. PARSONS, mining engineer and secretary of the institute; H. G. MOULTON, president of Brookings Institute and chairman of the finance committee of the institute; JOHN M. LOVEJOY, president of the Seaboard Oil Company and a former president and director of the institute, and JOHN R. SUMAN, vice president of the Humble Oil & Refining Company.

W. H. BERG was reelected president of the Standard Oil Company of California at the annual meeting in San Francisco last Thursday. Other officers reelected were H. D. COLLIER, R. W. HANNA, R. K. DAVIES and M. E. LOMBARDI, vice presidents; J. H. TUTTLE, secretary; V. F. PALMER, treasurer; G. J. O'BRIEN, assistant treasurer, and B. W. LETCHER, G. M. FOSTER and LEE LAIRD, assistant secretaries. The board of directors consists of the foregoing officers and G. E. KENNEDY, A. S. RUSSELL, P. H. PATCHIN and R. C. STONER.

LESTER L. WILES, oil man and banker of Skiatook, Okla., has been elected to serve his twenty-fifth consecutive year as president of the Skiatook school board. As a tribute to Mr. Wiles every person now living who has served with him on the school board has received a special invitation to attend the commencement exercises. He is a trustee of the Sand Springs (Okla.) Home, founded by the late Charles Page, oil and gas operator and philanthropist, and heads the oil department of the Sand Springs interests.

S. M. YOSS, plant engineer for the Wadhams Oil Company, subsidiary of the Socony-Vacuum Oil Company, retired recently on the company's annuity plan after completing 37 years of service.

TADEUSZ JULIAN BLAUTH and Z. K. WILK, of the Air Ministry, Warsaw, Poland, are inspecting the air fields of the United States and visiting petroleum centers. They will attend the Petroleum Exposition in Tulsa.

H. L. HITCHCOCK has been appointed manager of the Yale Oil Corporation's refinery in Worland, Wyo. He succeeds S. H. Farnum, who died last month from injuries suffered in an automobile accident. Mr. Hitchcock has been with Yale nine years.

MISS ELLEN SHAUNTY, librarian at the Petroleum Experiment Station of the Bureau of Mines, Bartlesville, Okla., and JAMES MYRL HALTOM, of that city, who were married April 18, have returned from a honeymoon in New Mexico. They will reside in Bartlesville.

SAMUEL A. BISHOP, of Los Angeles, Calif., and SEVERANCE A. MILLIKIN, of Cleveland, Ohio, were elected to the board of the Tide Water Associated Oil Company at its annual meeting in New York last week to fill unexpired terms of Robert M. Sands and Robert McKelvy, both of whom died last year.

T. H. WALLACE, of the Gulf Oil Corporation production department, is now in England, where he will supervise drilling operations on Gulf Oil Exploration, Ltd.'s, first test on 1,946 square miles in seven different counties. The first test is on the Penshurst estate in the parish of Leigh, between Edenbridge and Tumbridge Wells.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

The production of Oklahoma, classified as Indian "nations," shows Cherokee Nation producing 69,000 barrels per day; Creek Nation, 66,000 barrels; Osage Nation, 21,000 barrels; Pawnee reservation, 12,000 barrels, and Ponca City 1,800 barrels. Total 169,800 barrels. Kansas is producing 6,650 barrels per day.

Alexander Hamilton, refiner, dies in Houston, Tex.; Phillip V. Davis, producer, dies in Butler, Pa.; Capt. Harry Cummings, refiner and producer, dies in Tidioute, Pa.

Harry Stevens, of Muskogee, Okla., owns a farm in each of five oil fields, all bought for agricultural purposes before any drilling was done in their vicinity. He has never drilled a well, or bought an oil lease. His oil income comes from royalties.

20 YEARS AGO

A small pool in section 9-1s-2w, Carter County, Oklahoma, produces oil in small quantity that sells for $5 per barrel. It is green in color and has unusual lubricating qualities.

R. L. Blaffer, of Humble Oil & Refining Company, says the Ranger field will be one of the greatest fields of the country. "It is no place for a piker," says Mr. Blaffer, "as the wells cost a lot of money and the field is 'spotted.'"

David McKelvy, 76, one of the founders of the Tide Water Pipe Company, dies in Titusville, Pa. He was chief counsel for Tide Water when it was organized, and later its president until his health broke down.

10 YEARS AGO

L. E. Mallory, Jr., one of the largest oil producers in the Eastern fields, dies in Bradford, Pa. He was one of the founders of the Ohio Fuel Supply Company, Ohio Fuel Oil Company, and Bradford Refining Company.

Oklahoma University is erecting a complete refinery unit with a crude oil capacity of 300 barrels per day to be used in practical and experimental work.

DR. CLARK F. BARB, professor of petroleum engineering at the Colorado School of Mines, is conducting a tour of his senior students through the Permian Basin. He will address the Midland, Tex., chapter of the A.P.I. next week on secondary recovery.

H. A. HEMPHILL, president, and W. C. FITZ, secretary, of the West Texas Geological Society in Midland, Tex., are in charge of arrangements for the fall meeting of the American Association of Petroleum Geologists to be held in El Paso, Tex., the last week in September.

R. M. BENARDEAU is now vice president and general manager of the Franco Dominion Development Corporation in Oklahoma City, Okla. He was formerly with the Stanolind Oil & Gas Company in Tulsa and he is on the committee to welcome delegates from foreign lands at the International Petroleum Exposition.

J. L. ESSLEY was reelected president of the Superior Corporation, Tulsa, at the recent quarterly meeting of the board of directors. Other officers chosen were: FRANK MacKAY, FRANK NEELY and F. A. BODOVITZ, vice presidents; NORMAN C. CROSS, secretary and treasurer; S. PRICE GRAY, assistant treasurer; MARGARET ROUSE, assistant secretary. Mr. Bodovitz is counsel for the company.

O. L. BRACE, consulting geologist of Houston, Tex., sailed last week from New York on the Europa for Southampton, England. He will proceed to Athens, Greece, to examine results of a geological survey principally on the west coast of the Peloponnesian Peninsula. He is in charge of the party making the survey for WILLIAM HELIS, oil operator of New Orleans, La. Mr. Brace expects to return to Houston by July 15.

PARAGRAPHS

ARTHUR R. PEGG has been elected chairman of the Los Angeles Bilge Club, succeeding J. J. MURRAY, marine superintendent of the Tide Water Associated Oil Company at Los Angeles Harbor. Mr. Pegg is a brother of A. O. PEGG, marine superintendent of the Union Oil Company of California and a former chairman of the club.

HARVEY BLAIR, of Hartman & Blair, independent oil operators, who returned to his home in Wichita, Kans., this week after an extended vacation trip, established a new national fishing record while he was away by landing the largest Allison tuna fish ever taken on a 12-thread line. The record catch, made off the Bahama Islands in the Atlantic Ocean, weighed 143 pounds. It fought for an hour and 43 minutes. "I was almost exhausted, too," said Mr. Blair, who pointed out that tuna of this size have been landed heretofore with lines containing not less than 50 threads. Mr. Blair went to Miami, Fla., last January. From that city he flew to Rio de Janeiro, South America, where he passed most of his vacation. He took in the Kentucky Derby last Saturday on his way home.

A. M. CROWELL, chief agent for the Arkansas Board of Conservation, addressed a conservation symposium in New Orleans, La., this week.

KENNETH G. MacKENZIE, manager of the technical division of the Texas Company in New York, has been released from a hospital where he was confined for six weeks waiting for a fractured kneecap to knit.

H. D. EASTON, geologist, of Shreveport, La., addressed the Louisiana Academy of Sciences in Munroe, La., last week on "Personal Observations of North Louisiana Producing Structures."

CARL OWEN HUBBELL, pitcher for the New York Giants, became a successful oil operator when his first venture in the oil fields became a producer late last week in the prolific Kemp City (K.M.A.) field in Wichita County, North Texas. Mr. Hubbell is a native of Meeker, 13 miles south of Chandler in Lincoln County, Oklahoma.

JOE E. McGEATH, formerly district superintendent of the Magnolia Pipe Line Company at Alice, Tex., has been promoted to head of the new South Texas division of the company, announced last Friday. General offices of the division will be in Houston. Mr. McGeath began his service with Magnolia as a gauger.

JOHN B. HAVENSTRITE, of the Iniskin Oil Company, which is drilling a well in the Iniskin, Cook Inlet, area of Alaska, announces that operators of the well are installing mining equipment worth $50,000 in the gold area near Ketchikan, Alaska, and are preparing to enter the mining business. The company's test well is reported down 250 feet with approximately 250 feet to go before encountering the first objective sand.

DR. H. E. ELLIOTT, New Mexico geologist, is in Los Angeles, Calif., where he is expected to stay till the first of June.

HARRY M. RYDER, of the Ryder-Scott Company, Bradford, Pa., was elected president of the Bradford District Pennsylvania Oil Producers Association last week. Other officers elected are D. B. TANNER, first vice president; R. S. PRINGLE, JR., second vice president; HUGH GRANT, JR., secretary, and A. E. BOOTH, treasurer. Members of the executive committee chosen are D. T. ANDRUS, A. E. BOOTH, GEORGE BOVAIRD, JR., E. D. DORN, E. C. EMERY, R. M. HASKELL, W. J. HEALEY, P. L. MELVIN, C. N. PFOHL, JR., H. M. RYDER, W. J. SLOAN, LYNN G. SMITH, C. F. STEVENSON, C. E. STREETER, D. B. TANNER, T. P. THOMPSON, JR., and H. J. WALTER.

ED DILLEY, formerly scout for the Atlantic Refining Company in Houston, Tex., has been promoted to assistant land man of the Gulf Coast division. T. M. SEARCY has been transferred from Midland, Tex., to take over the duties formerly handled by Mr. Dilley.

R. R. ADAMS, of the Sinclair Refining Company, was named chairman of the Caddo Parish (Louisiana) Oil Dealers Association at a meeting of the group Friday night in Shreveport. A. W. GLEASON, Jr., Standard Oil Company of Louisiana, was named vice chairman and D. C. BUSH of the Gulf Refining Company, was elected secretary. The association adopted a 10-point program designed to "foster justice and equality for both automotive and general taxpayers."

Kansas State Geologist

When Ray Moore matriculated at Denison University, Granville, Ohio, nobody—least of all himself—had any idea he had started on the road to a distinguished career as a petroleum geologist. But he had. And today he is state geologist of Kansas. He got interested in the subject under the instruction of Dr. Frank Carney, professor of geology, and upon receiving his A.B. in 1913 he was appointed an aid on the United States Geological Survey. In the same year he began graduate work in geology at the University of Chicago, from which institution he received a Ph.D. in 1916. Denison conferred the honorary Sc.D. in 1935.

DR. RAYMOND C. MOORE

In the fall of 1916 Dr. Raymond C. Moore joined the University of Kansas faculty as assistant professor of geology, and in January of the next year he was made state geologist. In 1920 Doctor Moore was made chairman of the department of geology at the university. For five years he was editor of the Bulletin of the American Association of Petroleum Geologists, establishing the Bulletin as a regularly issued publication instead of a small volume of annual papers. In 1928 he was made president of the Society of Economic Paleontologists and Mineralogists. His writings include important contributions to knowledge of the oil and gas resources of Kansas. Carboniferous fossils engage his particular interest, assuming the proportions of a hobby. Doctor Moore was born in Roslyn, Wash., in 1892.

J. GRANT SPRATT, resident engineer in Calgary, Alberta, for the petroleum and natural gas division of the Alberta lands and mines department, has resigned to become assistant manager of the Anglo-Canadian Oil Company, in Calgary.

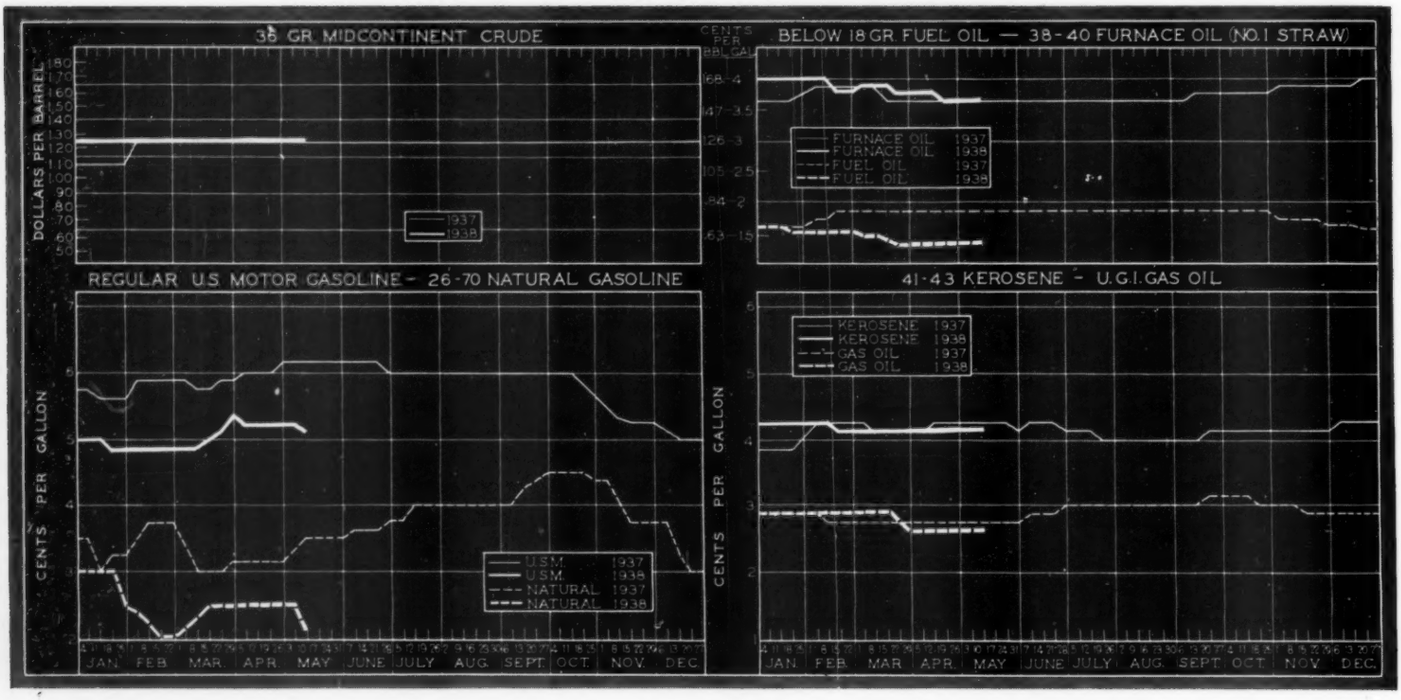
R. T. WILSON, executive manager of the Shamrock Oil & Gas Company, has returned to the company's office in Amarillo, Tex., after an extended trip in the east.

K. WACHTL, general executive of the Vacuum Oil Company, A.S., of Prague, Czechoslovakia, was honored recently on completion of 25 years of service with the company.

DON BENSON, geologist for the Sinclair Prairie Oil Company in its Baton Rouge, La., office, has been visiting in Amarillo, Tex., where he formerly was district geologist for the company.

CHARLES J. WRIGHTSMAN, president of the Wrightsman Petroleum Company, and CHARLES F. ROESER, president of Roeser & Pendleton, Inc., and executive head of the Independent Petroleum Association of America, both of Fort Worth, Tex., were honor guests at an entertainment given by oil men in that city last week.

COL. ERNEST O. THOMPSON, chairman of the Interstate Oil Compact Commission, member of the Texas Railroad Commission, and candidate for governor, was the principal speaker at the weekly luncheon of the San Antonio (Tex.) Kiwanis Club last Friday. Colonel Thompson cited the results attained in the oil industry through the interstate program as an example of what organization and assistance from the state government could do for other industries.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Gasoline Sales Brisk in Group 3 Area But Clouded Outlook Hurts Prices

By T. F. SMILEY

Gasoline presented a paradox in the Group 3 market this week. Consumption and shipments were excellent. Prices were weak.

The reason? Depends upon whom you ask.

The regular grade, which had been subjected to scattered underselling, dropped an eighth among refiners generally. Some of the other grades were softer. Informed observers say refiners barely are breaking even on the present tankcar prices of gasoline. Why quotations should sag is not altogether clear. The season of heavy consumption is close at hand and some Mid-Continent refiners declare they are sold up.

Consumption in industrial centers is showing no pronounced life, but it seems to be compensated for by good business in rural communities and small towns. Posted dealer and tank-wagon prices are reported to reveal little weakness.

Uneasy Over Crude Situation

Uneasiness over the crude situation is pointed to as a major reason for weakness in motor fuel prices. Many jobbers have been doing day-to-day buying in fear of a cut in crude prices, which might be accompanied by a proportionate reduction in gasoline. Upon seeing the eighth-cent lopped off the tankcar price of regular-grade material these jobbers have become more firmly convinced of the correctness of their practice, and they are likely to continue it till things look better. Other jobbers, moreover, actuated by the past week's developments, are believed likely to adopt a similar policy.

Another factor, still more potent perhaps, is declared to be the predicament of refiners who must use the crude for which they have contracted. They can't shut down, as others, unembarrassed by crude contracts, have done. To pay for their crude they must sell their gasoline. And even if they were not under pressure for cash to meet current bills they would be reluctant to store gasoline with the present outlook. The result of such unhappy conditions is that the refiner virtually is forced to take the best price offered him. Thus, it is declared, a few refiners, impelled by circumstances, are in effect fixing the price of gasoline.

Refined Oil Market Barometer

Although gasoline consumption is about normal seasonally and vacation demand will open in a few weeks, tankcar prices continue disappointing, with pronounced softness in some areas. Weakness is ascribed generally to overproduction of crude, with threat of lower prices; to heavy gasoline stocks, and to failure to make adequate cuts in plant operations. Natural gasoline weak.

MID-CONTINENT. Gasoline consumption rising, but prices off. Naturals weak.

EAST COAST. Gasoline prices fail to advance with more active demand. Industrial fuels soft.

GULF COAST. Inquiries for gasoline and fuel oil increasing. General market slightly better.

CALIFORNIA. No foreign inquiries and domestic market dormant. Most prices easy.

PENNSYLVANIA. Gasoline slightly firmer. Further recession in bright stocks.

CHICAGO. Gasoline offerings plentiful and market soft. Tractor distillates active.

Export inquiries aroused some hopes in the past week or two, but that was all they did. The cargo was said to have been filled from bulging stocks on the Gulf Coast. While this relieved pressure at the Gulf a little, there still remains a huge accumulation of material which was expected to go to the East Coast—but didn't.

Hard Drop for Naturals

Natural gasoline took another hard drop and was obtainable for about a half-cent under last week's prices. Weakness of the refined product has had its customary depressing effect on the naturals. Spot buying almost vanished, and small refiners, with limited storage facilities and with no established outlets, resorted to concessions to get rid of distress inventories. Some in the trade expressed the view that prices probably would flatten out at their present levels, although the market was described as extremely weak.

Tractor fuels continued in active demand. Kerosene and the higher-gravity distillates were benefiting from the brisk demand for tractor fuels. The heavier-gravity heating oils, those from No. 2 straw down, lost another eighth.

The customary buying of gasoline and lubricating oils, in preparation for harvest demands, was said to be decidedly lower than usual in some areas, perhaps because such preparatory buying in some former years had resulted in losses owing to small crops. With a big wheat crop in prospect this year, some observers predict there will be a congestion of orders for these materials in a few weeks. Wax was lifeless. So was heavy industrial fuel.

East Coast Consumption Gains But Motor Fuel Prices Lag

By H. STANLEY NORMAN

NEW YORK, May 10.—Failure of refined petroleum prices to advance abreast of consumption is proving the most disappointing element in the early summer business. As normally expected, domestic fuel oil prices are skidding but even this list of products has slumped more drastically than some refiners anticipated.

Particularly disappointing is the freedom of movement of motor fuel at tankcar prices which are no higher than prevailed during the major part of last winter. Advent of warm early summer temperatures has stimulated automobile operation considerably and consumption is generally reported running ahead of the comparable season in 1937. Despite the increasing demand, 65 octane gasoline is selling in the New York tankcar market at 6½ cents per gallon and is available in barges at 6¼ cents, prices which are at best no higher than prevailed during the winter months of December, January and February.

At the present prices most motor fuel markets in the northeast are on reasonably stable ground, but many had anticipated an improvement by this time to offset the slackened deliveries and skidding prices for the winter products—gas oil and distillate and heavy fuel oil. The adjustment to compensate for the loss of business volume and skidding prices in the winter products has not been realized so far.

Rumania's greater participation in the European export market during the past few weeks, a condition which continued last week, gives indication that abandonment of certain restrictions on exchange by the Rumanian government is working to the detriment of Gulf Coast refiners. Gasoline from Rumania is available at a price corresponding to approximately 4½ cents on the Gulf Coast whereas American refiners are quoting no lower than 4⅞ cents per gallon for 64-66, 375 end-point motor fuel. Rumania also disposed of a cargo of gas oil last week at a price about one-fourth to one-half a cent per gallon below the lowest price on the Gulf Coast. In the face of prevailing conditions several American petroleum exporters declare they have ceased competing for European business until Rumania's stocks are cleaned up. The bearish pressure on the refinery market is also acute for coastwise movement. Reports were current last week that one cargo of No. 2 fuel oil had been sold for export movement at 3½ cents per gallon, but a majority of suppliers are asking from 3⅝ to 3¾ cents in the domestic trade.

Hopes for improvement in the refined products market are not being raised by the increase in crude runs to stills. Greater activity of refiners is delaying the draft on motor fuel stocks which would otherwise be in full swing in view of the increased rate of consumption. By increasing runs to stills refiners are keeping the open market plentifully supplied with motor fuel at prevailing prices and are delaying the time at which a greater margin of profit can be realized on the summer business. Of course, the motoring season will not reach its peak for several weeks, but normally the reductions in motor fuel stocks would be at a greater rate than currently in evidence.

Despite the recent sale of several cargoes of heavy Bunker C fuel oil on the Gulf Coast aggregating, according to some reports, eight or 10 cargoes at around 70 cents, the market is still soft. Bunker C fuel oil is still available at 72½ to 75 cents per barrel. The result has been a softening of the structure in the north Atlantic seacoast district where discounting has lowered the terminal prices to reported low of 95 cents per barrel. Some were said to be doing business on a basis of $1 per barrel, but the large suppliers are holding their previous quotation of $1.05. Demand from the marine trade is about the only channel consuming amounts even approaching normal. Railroads are strictly dependent on general business conditions which have experienced relatively little change in the past five or six months. Steel and automotive industries, normally large consumers of industrial fuel, are still floundering around their low marks and offer little hope to refiners in the near future.

Kerosene is following other light fuels into lower ground and instances of price shading in the New York territory are reported more frequently than in April. Kerosene is available in New York's tankcar market at 5½ to 5⅝ cents per gallon. Tank-wagon distributors are reported cutting nearer and nearer the tankcar quotation, contributing to a disturbed market.

The only territory in the northeastern Atlantic section in which gasoline prices were unsettled last week was in Philadelphia. Occasional reports came from Philadelphia that 65 octane gasoline was moving from some plants at a shade below 6½ cents per gallon, but the practice had not reached serious proportions when the week ended.

In western Pennsylvania most refiners reported demand for gasoline was satisfactory and prices were inclined slightly.

Lubricating oil sales and prices are following a trend opposite to gasoline. Pennsylvania refiners made further reductions last week in their bright stock quotations ranging from one-half to 1½ cents per gallon. The 10 and 15 pour test grades of bright stock are now available at 15 and 16 cents per gallon, respectively, while 25 pour test, No. 8 color, is offered in several directions for 13 cents per gallon.

The East Texas crude oil market continues to attract attention in this area almost equal to that displayed in products. Concessions of 15 to 17½ cents per barrel under the posted field price of $1.35 per barrel are reported on spot Gulf Coast deliveries. Rumors are heard, but not confirmable, that some movement has been on a basis of as much as 30 cents per barrel below the market, considering the gathering, pipe line and over-the-dock charges for Gulf Coast delivery at 17½ cents. This means, if the rumors are correct, that East Texas crude is available for $1.12½ cents f.o.b. The rumors are discounted in practically all quarters, although movement at concessions of 15 to 17½ cents

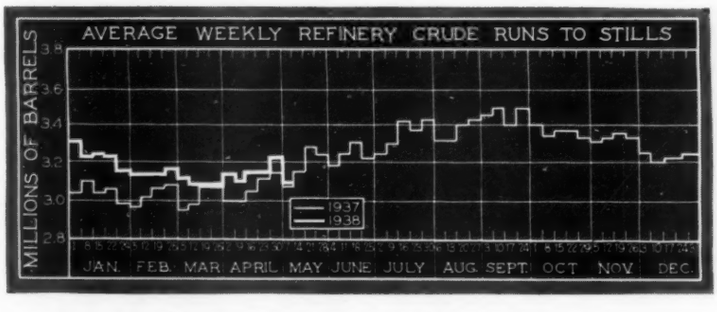
(Continued on Page 346)

A. P. I. Weekly Refinery Statistics

Week Ending May 7, 1938

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	495,000	22,839,000	10,246,000
Appalachian	88.4	96,000	3,383,000	1,365,000
Indiana, Illinois, and Kentucky	92.4	402,000	14,640,000	7,841,000
Oklahoma, Kansas, and Missouri	84.7	273,000	7,846,000	3,812,000
Inland Texas	56.6	121,000	2,565,000	1,582,000
Texas Gulf	95.7	697,000	12,603,000	8,679,000
Louisiana Gulf	96.6	136,000	2,420,000	3,099,000
North Louisiana and Arkansas	63.7	45,000	522,000	641,000
Rocky Mountains	69.7	44,000	2,257,000	799,000
California	90.9	499,000	15,579,000	89,154,000
Total reported	89.0	2,808,000	84,654,000	127,218,000
Estimated unreported	.....	272,000	4,810,000	2,630,000
*Estimated total	.....	3,080,000	89,464,000	129,848,000
*Estimated total, previous week	.....	3,215,000	91,339,000	128,270,000
*May 8, 1937	.....	3,065,000	81,469,000	94,874,000

*Bureau of Mines, currently estimated.



Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending April 23, 1938	307,654,000 barrels
Week ending April 16, 1938	306,774,000 barrels
Week ending April 24, 1937	302,828,000 barrels

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of May 10, 1938

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas a third grade and a premium grade are also available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dir.	Inc. tax	tank-wag.
Chicago, Ill.	15.6	13.6	4.0	10.5
Decatur	15.6	14.1	4.0	10.5
Joliet	15.6	14.1	4.0	10.5
Peoria	15.6	14.1	4.0	10.5
Quincy	15.4	13.9	4.0	10.3
Davenport, Ia.	15.6	14.1	4.0	‡10.5
Des Moines	15.4	13.9	4.0	‡8.3
Mason City	15.8	14.3	4.0	‡10.7
Sioux City	15.6	14.1	4.0	‡10.5
Duluth, Minn.	17.4	15.9	5.0	11.3
Mankato	17.0	15.5	5.0	10.9
Minneapolis	17.0	15.5	5.0	10.9
LaCrosse, Wis.	17.0	15.5	5.0	10.9
Green Bay	17.4	15.9	5.0	10.3
Milwaukee	16.8	15.3	5.0	10.7
Detroit, Mich.	15.3	13.8	4.0	10.0
Grand Rapids	14.8	13.8	4.0	9.7
Saginaw	16.3	14.8	4.0	9.3
Evansville, Ind.	17.1	15.6	5.0	†11.0
Indianapolis	17.3	15.8	5.0	†11.2
South Bend	17.6	16.1	5.0	†9.4
Fargo, N. Dak.	17.2	15.7	4.0	12.1
Minot	18.5	17.0	4.0	13.4
Huron, S. Dak.	17.5	16.0	5.0	11.4
Kans. City, Mo.*	14.9	13.4	4.0	9.8
St. Louis*	15.2	13.7	4.0	8.0
St. Joseph*	14.9	13.4	4.0	9.8
Wichita, Kans.	14.4	12.0	4.0	8.3

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective Dec. 7, 1936, f.o.b. Chicago tank-wagon prices: Range oil, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.3 cents. Stanolex No. 1, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7 cents. Stanolex furnace oil, 1-149 gallons, 7.8 cents; 150 gallons and over 7 cents; Stanolex A, 1-399 gallons, 5.75 cents; 400 gallons and over, 4.75 cents. Stanolex B, 1-799 gallons, 5.75 cents; 800 gallons and over, 4.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Tank-wag. dlr.	Tank-car con'r.	Inc. tax	tank-wag.
Atl'tic. City, N. J.	12.75	11.25	4.0	8.0
Newark	12.75	11.25	4.0	8.0
Annapolis, Md.	14.85	13.35	5.0	9.5
Baltimore	14.25	12.75	5.0	9.0
Cumberland	16.65	14.15	5.0	10.0
Wash'g'n, D. C.	12.5	11.0	3.0	9.5
Danville, Va.	16.95	14.45	6.0	12.9
Norfolk	15.75	13.25	6.0	11.5
Petersburg	16.05	13.55	6.0	11.7
Richmond	16.05	13.55	6.0	11.7
Roanoke	17.25	14.75	6.0	12.9
Charles'n, W. V.	17.05	14.55	6.0	12.6
Parkersburg	15.35	13.85	6.0	11.2
Wheeling	16.25	14.85	6.0	12.2
Charlotte, N. C.	18.65	16.15	7.0	12.6
Hickory	19.15	16.65	7.0	13.0
Mt. Airy	18.95	16.45	7.0	12.8
Raleigh	18.25	15.75	7.0	12.1
Salisbury	18.75	16.25	7.0	12.7
Charleston, S. C.	17.25	14.75	7.0	11.1
Columbia	18.25	15.75	7.0	12.1
Spartanburg	18.95	16.45	7.0	12.9

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be the equivalent to the dealer price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline			Kero.
	Tank-wag.	Net dlr.	Inc. tax	tank-wag.
Atlanta, Ga.	21.0	18.0	7.0	*14.0
Augusta	21.0	18.0	7.0	*14.0
Macon	21.0	18.0	7.0	*14.0
Savannah	19.5	16.5	7.0	*12.0
Birm'ham, Ala.	21.0	18.0	8.0	12.0
Mobile	21.0	18.0	9.0	†11.0
Montgomery	21.0	19.0	9.0	†13.0
Jackson, Miss.	19.5	16.5	7.0	*13.0
Vicksburg	19.5	16.5	7.0	*13.0
Jacks'ville, Fla.	22.5	17.5	8.0	†11.0
Miami	20.0	17.0	8.0	†12.5
Pensacola	22.0	19.0	9.0	12.0
Tampa	20.5	17.5	8.0	.10.5
Lexington, Ky.	19.0	16.0	6.0	11.0
Covington	18.5	15.5	6.0	11.0
Louisville	19.0	16.0	6.0	10.5
Paducah	19.0	16.0	6.0	10.0

Price basis to tank-wagon consumers: Effective January 4, 1937, 3 cents per gallon below tank-wagon price. Kerosene prices in all states subject to 2 cents discount except in Kentucky where prices are net.

*Includes 1-cent state tax. †Subject to 2-cent discount.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola has a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag
Denver, Colo.	14.0	5.0	11.5
Grand Junction	19.0	5.0	15.0
Pueblo	13.0	5.0	10.5
Casper, Wyo.	17.0	5.0	11.5
Cheyenne	16.0	5.0	13.0
Butte, Mont.	19.5	6.0	15.5
Billings	19.5	6.0	13.0
Helena	19.5	6.0	15.5
Great Falls	19.5	6.0	15.5
Salt Lake City, Utah	18.0	5.0	16.0
Twin Falls, Ida.	21.0	6.0	18.0
Boise	21.5	6.0	18.0
Albuquerque, N. M.	17.5	*6.5	12.0

*Includes city tax of one-half cent.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Tank-wag. con'r.	Di-vided dlr.	Inc. tax	tank-wag.
Ohio points	16.5	15.5	5.0	*13.0

*Includes state tax of 1 cent.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Tank-wag.	Tank-car	Inc. tax	tank wag.
Albany, N. Y.	14.5	12.5	5.0	9.0
*Met. N. Y.:				
M'htt'n, Br'nx	14.0	12.5	5.0	8.75
Staten Island	14.0	12.5	5.0	8.75
Q'ns & Bklyn.	14.0	12.5	5.0	8.75
Buffalo	14.0	13.0	5.0	7.5
Rochester	15.0	13.2	5.0	8.5
Syracuse	14.5	13.1	5.0	9.0
Boston, Mass.	13.5	11.75	4.0	8.5
Portland, Me.	15.0	13.0	5.0	8.75
Manch'ter, N.H.	15.5		5.0	9.0
Burlington, Vt.	15.4	13.4	5.0	9.5

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; monthly purchases under 5,000 gallons, pay divided dealer tank-wagon prices at delivery point.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank-wag.	Serv. sta.	Inc. tax	tank-wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	21.5	22.5	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	23.0	24.0	6.0	16.5
Tacoma	20.0	21.0	6.0	13.5

*Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank-wag.
Omaha	18.0	16.5	6.0	10.8
McCook	17.5	15.0	6.0	9.5
Norfolk	18.4	16.9	6.0	10.3
North Platte	18.8	16.9	6.0	11.2
Scotts Bluff	19.5	16.5	6.0	12.3

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Tank-wag. dlr.	Tank-car con'r.	Inc. tax	tank-wag.
N. Orleans, La.	19.0	16.5	*10.0	†12.0
Baton Rouge	17.0	14.5	8.0	12.0
Alexandria	17.5	15.0	8.0	10.5
Lafayette	18.0	15.5	8.0	12.5
Lake Charles	18.0	15.5	8.0	12.5
Shreveport	16.5	14.0	8.0	9.5
Kn'xv'lle, Tenn.	20.0	17.5	8.0	14.0
Memphis	18.0	15.5	8.0	12.0
Chattanooga	19.5	17.0	8.0	13.5
Nashville	19.0	16.5	8.0	10.5
Bristol	19.0	17.75	8.0	14.5

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Louisiana kerosene prices include 1-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Tank-wag. dlr.	Tank-car con'r.	Inc. tax	tank-wag.
Philadelphia, Pa.	13.75	12.25	5.0	10.0
Pittsburgh	15.0	13.0	5.0	10.5
Allentown	14.25	12.75	5.0	10.5
Erie	14.5	13.0	5.0	10.0
Scranton	14.5	13.0	5.0	10.5
Altoona	15.0	13.0	5.0	10.5
Dover, Del.	14.0	....	5.0	10.5
Wilmington	14.0	....	5.0	10.5
Springf'd, Mass.	14.0	....	4.0	8.0
Worcester	14.5	....	4.0	9.0
Hartford, Conn.	13.6	....	4.0	8.0
New Haven	13.5	....	4.0	8.0
Providence, R. I.	13.3	....	4.0	8.5

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract, less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Muskogee, Okla.	14.5	5.0	7.0
Oklahoma City	13.5	5.0	8.0
Tulsa	14.0	5.0	6.0
Ft. Smith, Ark.	14.25	5.0	8.0
Little Rock	16.75	7.5	9.5
Texarkana	14.0	5.0	8.5

Texas

	Gasoline			Kero.
	Tank-wag.	Serv. sta.	Inc. tax	tank-wag.
Dallas, Tex.	14.0	18.0	5.0	8.0
Fort Worth	14.0	18.0	5.0	8.0
Houston	14.5	19.0	5.0	8.0
San Antonio	13.5	17.5	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gallon lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank-wag.
Halifax, N. S.	24.5	10.0	18.5
St. John, N. B.	24.5	10.0	18.5
Montreal, Que.	21.0	6.0	17.5
Toronto, Ont.	22.0	6.0	17.0
Hamilton, Ont.	22.0	6.0	17.0
Winnipeg, Man.	27.5	7.0	20.7
Brandon, Man.	28.1	7.0	22.3
Regina, Sask.	27.0	7.0	22.0
Saskatoon, Sask.	29.8	7.0	24.9
Edmonton, Alta.	26.5	7.0	21.5
Calgary, Alta.	24.0	7.0	19.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon price. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Retail Price Changes

Standard Oil Co. (Indiana) May 8 reduced tank-wagon kerosene 2.1 cents at St. Louis.

Standard Oil Co. of New Jersey May 4 reduced tank-wagon kerosene .5 cent at Atlantic City.

Standard Oil Co. of California April 29 advanced tank-wagon kerosene and gasoline .5 cent at Spokane.

Standard Oil Co. of Nebraska May 2 advanced dealer gasoline .2 cent at Scotts Bluff.

Continental Oil Co. May 2 advanced dealer gasoline .5 cent at Oklahoma City; February 16 reduced dealer gasoline .5 cent at Little Rock.

New York Market

(Continued from Page 345)

and even 20 cents per barrel below the normal f.o.b. price of $1.42½ is known to exist.

At the close of the week the diesel fuel oil price was lowered 10 cents per barrel at most Canadian terminals by Imperial Oil Co., following similar action at Aruba and in the Panama Canal Zone. Diesel fuel oil is available in New York harbor at $1.75 per barrel. The same price is quoted at Philadelphia, Baltimore and Providence. The price at Boston is generally quoted at $1.85 per barrel.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of May 10, 1938

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below	.04⅛	.04¼
63-66 octane	.04½	.04⅝
67-69 octane	.04¾	.04⅞
70-72 octane (regular)	.05⅛	.05¼
60-62 400 grades:		
62 oct. and below	.04⅛	.04¼
63-66 octane	.04½	.04⅝
67-69 octane	.04¾	.04⅞
70-72 octane (regular)	.05⅛	.05¼
64-66 375	.04¾	.04⅞
68-70 360	.05	.05⅛

NORTH TEXAS—

U S. Motor grades:		
62 octane and below	.04⅛	.04¼
63-66 octane	.04½	.04⅝
67-69 octane	.04¾	.04⅞
70-72 octane (regular)	.05⅛	.05¼
60-62 400	.04⅜	.04½
64-66 375	.04¾	.04⅞

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)

U. S. Motor grades:		
62 octane and below	.04⅜	.04½
63-66 octane	.04⅞	.05
67-69 octane	.05	.05⅛
70-72 octane (regular)	.05½	.05⅝

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:		
62 octane and below	.04½	.04⅝
67-69 octane	.05	.05⅛
70-72 octane (regular)	.05½	.05⅝

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.04¼	.04⅜
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05⅛	.05⅜
60-62 400 grades:		
62 octane and below	.04¼	.04⅜
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05⅛	.05⅜
64-66 375	.04¾	.05
68-70 360	.05	.05¼

PENNSYLVANIA (Inland refineries)—

58-60 U. S. Motor:		
Below 60 octane	.05⅛	.05⅜
65 octane	.06¼	.06½
68-70 octane	.06⅞	.07⅛

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06¾	.08¼
58-60 400, 65 oct. and higher	.08½	.09¼

EAST COAST (Domestic)—

U. S. Motor, 60-64.9 octane:		
New York (Bayonne)	.06¼	.06½
Philadelphia	.06¼	.06½
Boston	.06½	.06¾
Baltimore	.06½	.06¾
Charleston, S. C.	.07	.07¼
U. S. Motor, 65 and above:		
*New York (Bayonne)	.06½	.07
Philadelphia	.06½	.07
Boston	.06¾	.07
Baltimore	.07	.07¼
Charleston, S. C.	.07¼	.07½

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane	.05	.05¼
60-64.9	.05¼	.05⅜
65 octane and higher	.05½	.05¾

Naphtha

PENNSYLVANIA (Inland refineries)—

52-56 450 (blending)	.04¾	.05

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.02⅛
Grade 18-55	.02½	.02⅝

NORTH TEXAS—

Grade 26-70		.02⅛
Grade 18-55	.02½	.02⅝

CALIFORNIA—

75-85 375-390	.06½	.07

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70		.02½

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110 flash, 540-550 e.p.	.04	.04⅛
41-43 gr., 300-520 l.b.p., 110-125 flash, 500-520 e.p.	.04⅛	.04¼
46-48 gr., 210-230 l.b.p., 480 max., e.p.	.04½	.04⅝

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04⅛	.04¼
42-44	.04¼	.04⅜

NORTH TEXAS—

41-43	.04⅛	.04¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43	.04⅜	.04½

ARKANSAS (Ark., N. La., Miss. del.)—

41-43	.04½	.04⅝

PENNSYLVANIA (Inland refineries)—

45	.05	.05⅛
46	.05⅛	.05¼
47	.05¼	.05⅜

CHICAGO (Based on Group 3)—

41-43	.04⅛	.04⅜
42-44	.04⅜	.04⅝

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.05	.06

NEW YORK (Bayonne, N. J.)—

41-43		.05⅜

***GULF COAST (domestic)—**

41-43	.04⅝	.04¾

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03⅞	.04
No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾
No. 2 straw, 32-36	.03	.03⅛
No. 2 dark, 32-36	.02⅞	.03
No. 3 zero to 15, 28-32	.02¾	.02⅞
No. 3, 15 and above, 28-32	.02⅝	.02¾

NORTH TEXAS—

No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03½	.03⅝

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36		.03⅝

CHICAGO (Based on Group 3)—

Range oil	.03⅞	.04⅛
No. 1 prime white, 38-40	.03¾	.04
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03⅝	.03⅝
No. 2 dark, 32-36	.03¼	.03⅜
No. 3, zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅞	.03

NEW YORK (Bayonne, N. J.)—

*No. 1		.05¾
*No. 2		.04¾
*No. 4		.04¾

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal.; fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02⅝	.02¾
No. 4, low cold test, 24-28	1.05	1.10
No. 4, 15 and above, 24-28	.85	.90
No. 5, low cold test, 18-22	.70	.75
Below 18 fuel oil, industrial	.55	.60

NORTH TEXAS—

U.G.I. gas oil	.02⅝	.02¾
No. 4, low cold test, 24-28	1.05	1.10
No. 5, low cold test, 18-22	.72½	.77½
Below 18 fuel oil, industrial	.55	.60

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

10-14 fuel oil, industrial	.80	.85

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 4, low cold test, 24-28	1.05	1.10
No. 4, 15 and above, 24-28	.85	.95
No. 5, low cold test, 18-22	.70	.77½
No. 5, 15 and above, 18-22	.60	.70
No. 6, low cold test, 10-16	.60	.70
No. 6, 15 and above, 10-16	.35	.45

PENNSYLVANIA (Inland refineries)—

36-40	.03⅝	.04

CALIFORNIA

Los Angeles:		
30-40 gas oil, per bbl.	1.25	1.50
24 plus diesel, per bbl.	1.20	1.50
24 plus diesel (bunkers)	1.30	1.55
12-16 (bunkers at tidewater)	.90	1.00
10-16 (cargo lots)	.80	.90
12-17 (tankcars)	.60	.90
10-17 (high sulfur)	.55	.85
San Joaquin Valley:		
10-18 (tankcars)	.60	.85
24 plus diesel, per bbl.	1.30	1.50
San Francisco:		
24 plus diesel, per bbl.	1.45	1.55
24 plus diesel (bunkers)	1.55	1.65
10-16 (bunkers)		.95

GULF COAST—

28-30 gas oil	.03¼	.03½
28-30 diesel (bunkers)		1.75
Bunkers (bulk cargoes)	.72	.75
Bunker C (bunkers)		.80

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04¾
28-30 diesel (lighterage 6¼c per bbl.)		1.85
28-30 diesel (tankcars)	.04¾	.05
Bunker C (to ocean-going ships in N. Y. harbor)		1.05
Industrial fuel (tankcars)	.04	.04¼

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

Bright Stocks:		
190-200 D, 15-25		.19
150-160 D, 0-10	.14½	.16
150-160 D, 15-25	.13½	.15½
150-160 E, 15-25	.13½	.15
100-110 D, 0-10		.14½
Steam refined:		
631 green (treated)		.13½
600 dark green (untreated)		.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour test	.16	.16½
15 pour test	.15	.15½
20 pour test	.14	.14½
25 pour test	.13	.13½
Steam refined:		
600	.08½	.09
650	.10½	.11½
600 Pennsylvania flash	.11	.13
630 flash	.14	.15
600 Warren E filtered	.13	.14

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:		
150-3		.09
180-3		.10
180-4		.09½
200-3		.10½
200-4		.10
250-3		.11½
250-4		.11
280-3		.12½
280-4		.12
300-3½		.13
400-3½		.14
100-2½ paraffin oil		.06
15-20 Cold Test:		
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12
280-4		.11½

GULF COAST—

Pale Oils:		
200-3	.07	.07¼
300-3	.07½	.07¾
500-3½	.08⅛	.08¾
750-3½	.08⅝	.09¼
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red Oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale Oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red Oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F. color, 400-405 flash:		
Zero pour test	.16	.16½
10 pour test	.15	.15½
15 pour test	.14½	.15
25 pour test	.13½	.14
180 vis. at 70° F., 3 color:		
25 pour test	.15	.15½
200 vis. at 70° F., 3 color:		
Zero pour test	.17½	.18
10 pour test	.16½	.17
15 pour test	.16	.16½
25 pour test	.15	.15½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.02⅛	.02¼

PENNSYLVANIA (Inland refineries)—

122-124 (a.m.p.) w.c. scale	.0190	.0200
124-126 (a.m.p.) w.c. scale	.0190	.0200

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0420
125-127 (a.m.p.) wax		.0435
128-130 (a.m.p.) wax		.0445
130-132 (a.m.p.) wax		.0455
133-135 (a.m.p.) wax		.0500
135-137 (a.m.p.) wax		.0515
124-126 (a.m.p.) w.s.		.0185
124-126 (a.m.p.) y.s.		.0185
Petrolatum in barrels, carload lots:		
Dark green	.02	.02⅛
Amber	.02⅜	.02½
Extra amber	.02⅝	.02¾
Lily white	.05⅛	.05¼
Snow white	.06⅛	.06¼
Cream	.04¼	.04¼

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.04¾	.04⅞
60-62 400	.04¾	.04⅞
61-63 390	.04⅞	.05
64-66 375	.04⅞	.05

LOS ANGELES—

U. S. Motor grades:		
55-65 octane	.05¼	.05½
65-69 octane		.05¾
Above 69 octane		.06¼

KEROSENE

GULF COAST—

41-43 prime white	.04¾	.04⅝
41-43 water white	.04½	.04¾
44 water white		.04¾

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s. in bbls.)—

Cylinder Stocks:		
600 Warren E	.14½	.15
600 S.R. unfiltered	.15½	.16
630 S.R. unfiltered	.17½	.18
600 flash S.R.	.17½	.18
630 flash, S.R.	.21	.21½
Bright Stocks:		
8 color	.21½	.22
6½ plus color in dilution		.21

NEUTRAL OIL

200-3 color	.23½	.24
150-3 color	.21½	.22

PARAFFIN WAX

NEW YORK (prices per pound)—

123-126 a.m.p.		.0375
125-127 a.m.p.		.0387
128-130 a.m.p.		.0412
133-135 a.m.p.		.0437
135-137 a.m.p.		.0455
Crude Scale:		
124-126 w.s.	.0185	.0200
124-126 y.s.	.0185	.0200

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

(Effective January 28, 1937)

East Texas (May 22, 1937)*	$1.35
Van, Tex.†	1.10
Camp Hill, Tex.	1.27
Cass County, Tex.‡	1.25
Talco	.73
Altus and Tipton, Okla.§	1.20
Other fields (see gravity table).	

*All companies. †Humble Oil & Refining Co.; Pure Oil Co. ‡Texas Co. §Gulf Oil Co. Talco by Humble Oil & Refining Co.

North Louisiana and Arkansas

Smackover, all grades	$ .90
Tullos and Urania	1.02
El Dorado East field	.90
Union County, Ark.	.90
Ouachita County, Ark.	.90
Lisbon, La. (Dec. 13, 1937)*	.98

*Caddo Crude Oil Purchasing Co.

Gulf Coast

(Effective January 28, 1937)

Choctaw and Darrow, La. See note below	
Clay Creek, Tex.	$1.00
Garden Island, La.	1.37
Cleveland, Tex.	1.27
Hardin, Tex.	1.15
Lafitte, La.	1.24
Livingston, Tex.	1.27
Welsh, La.	.98
Tepetate (La.) (Jan. 28, 1937)	1.24

Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields take Mirando gravity prices. Jennings, La., 5 cents lower than Gulf Coast prices on each degree. Segno, Texas, takes Gulf Refining Co.'s Gulf Coast prices. Choctaw and Darrow, Louisiana, posted for first time by Standard Oil Co. of Louisiana, start below 21 degrees at 90 cents, with 3-cent differential up to 25 gravity, then 2-cent differential up to 40 and above, $1.36. Effective October 1, 1937, Stanolind Oil & Gas Co. in Evangeline, La., pays 92 cents for below 20 gravity, adding 2 cents for each degree upward to 40 and over, at $1.34.

Rocky Mountain States

(Effective January 28, 1937)

Iles, Colo., light*	$1.18
Iles, Colo., heavy*	1.12
Greybull, Wyo.*	1.30
Torchlight, Wyo.*	1.30
Grass Creek, Wyo., light*†	1.30
Grass Creek, Wyo., heavy (May 1, 1938)*	.50
Hamilton Dome, Wyo. (May 1, 1938)*	.45
Elk Basin, Wyo., light*†	1.30
Frannie, Wyo., heavy*	.62
Frannie, Wyo., light (May 1, 1938)*	.65
Hogback, N. M. (Jan. 28, 1937)*	1.33
Salt Creek, Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†‡	1.23
Rock Creek, Wyo.†	1.20½
Lea County, N. M. (see West Texas gravity table).	
Artesia, N. M. (Jan. 2, 1937)‡	.90
Maljamar, N. M. (Jan. 28,1937)‡	.90
Canon City and Florence, Colo.	1.10
Lance Creek, Wyo.*	.97
Lander, Wyo. (Jan. 1, 1938)§	.51½
Sunburst, Mont. (Nov. 16, 1937)†	.90
Cat Creek, Mont. (Jan. 1, 1938)‡	$1.30
Garland, Wyo. (Jan. 1, 1937)†	.50

*Stanolind Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co. Texas Co. (April 1, 1938). §Hudson Oil Co.

Middle Western States

OHIO OIL CO.
(Effective January 28, 1937)

Lima	$1.00
Illinois	1.35
Princeton, Ind.	1.35
Midland, Mich. (Jan. 5, 1938)*	1.12
West Branch, Mich. (Dec. 29, 1937)†	.80
Buckeye (Jan. 8, 1938)	1.09½
Arenac, Mich. (Dec. 29, 1937)†	.80
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River	1.42
Kentucky River	1.50
Western Kentucky	1.40

*Posted by Pure Oil Co.
†McClanahan P. L. and Simrall. Midland, Mich., price posted by Simrall Corp. and Pure Oil Co. includes Greendale, Porter, Beaverton, Crystal and equal grades. West Branch and Arenac by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Buckeye posted by Simrall Corp. and Pure Oil Co.

West Texas

See gravity table.	
Pecos County*	$ .91
Pecos shallow†	.81

*Shell Petroleum Corp., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Petroleum Corp.

Southwest Texas

(Effective January 28, 1937)

Pettus	$1.37
Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.09
Lytton Springs	1.12
Luling	1.00

Saxet and Taft take same gravity table as Gulf Coast.

Eastern States

TIDE WATER ASSOCIATED OIL CO.
(Effective March 7, 1938)

Bradford, Pa.	$2.05
Allegany, N. Y.	2.05

SOUTH PENN OIL CO.
(Effective March 7, 1938)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	2.05
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	1.71
Pennsylvania Grade Oil in Eureka Pipe Line lines	1.65
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.55
Corning Grade Oil in Buckeye Pipe Line Co.'s lines	1.27

PENNZOIL CO.
(Effective March 7, 1938)

Pennsylvania Grade Oil in National Transit Lines:	
Group A	1.98
Includes, Cochran, Franklin, Hamilton and Doolittle districts.	
Group B	1.97
Includes Tidioute district.	
Group C	1.96
Includes Turkey and Tidioute districts.	
Group D	1.96
Includes Bear Creek and Porkey districts.	
Group E	1.90
Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacey and Kinzua districts.	

PURE OIL CO.
(Effective March 7, 1938)

Cabin Creek, W. Va.	$1.65
Bradford Hollow, W. Va.	1.65
Kelly Creek, W. Va.	1.65

Canada

Ontario (Sept. 9, 1933)*

Petrolia	$2.10
Oil Springs	2.17
TURNER VALLEY NAPHTHAS AND CRUDE OIL	
(January 5, 1938, by Imperial Oil, Ltd.)	
Clear naphtha and discolored naphtha, 65 gravity and higher	$2.14
Discolored naphtha and crude oil, 40-40.9 gravity	1.14
Increasing 2 cents for each degree gravity with top price for 64-64.9 gravity	1.62
These prices f.o.b. producers field tankage.	

*Imperial Oil, Ltd.

Crude Oil Price Changes

Kanotex Refining Co. of Arkansas City, Kans., posted a crude price reduction of 25 cents per barrel on all grades it purchases, effective May 10. The company buys oil in Cowley and Sumner counties in Kansas and in Kay County, Oklahoma. It has been running about 6,500 bbls. of crude per day. The new schedule starts at 34-34.9 degrees, 93 cents, and adds 2 cents for each degree upwards to and including 40 degrees and over at $1.05.

Effective May 1 Stanolind Oil & Gas Co. reduced the price of crude oil in three Wyoming fields. Grass Creek heavy was posted at 50 cents per barrel, a 12-cent cut, which was met by Ohio Oil Co.; Hamilton dome crude, all grades, at 45 cents per barrel, a 12-cent cut, and Frannie light oil at 65 cents, a 17-cent cut.

Crude Prices by Gravities

	Oklahoma-Kansas	Oklahoma-Kansas	North and Central Texas	East Central Texas (Mexia district)	North Louisiana-Arkansas	Gray County, Texas	Hutchinson-Carson counties, Texas	Rodessa, Louisiana-Texas and Panola County, Texas	Conroe, Tomball, Raccoon Bend, (Deep) Satsuma	Gulf Coast	Gulf Coast	Lea County, N. Mex. West Texas except Pecos County	Mirando district, Texas	Marion County, Texas	Refugio, Greta, Saxet, Taft, Texas	Anahuac, Flour Bluff, Dickson, Turtle Bay	White Castle, Louisiana	Iowa, Louisiana	Cayuga, Texas
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Bel. 18	....	....	....	....	....	....	....	....	....	$.95	....	....	....	....	....	....	....	$.90	....
18-18.9	....	....	....	....	....	....	....	....	....	.95	....	....	....	....	....	....	....	.92	....
19-19.9	....	....	....	....	....	....	....	....	....	.95	....	....	....	....	....	....	$.94	.94	....
20-20.9	....	....	....	....	....	....	....	....	....	.95	$.95	....	$.96	....	$1.01	....	.96	.96	....
21-21.9	....	....	....	....	....	....	....	....	....	.98	.98	....	.98	....	1.03	....	.98	.98	....
22-22.9	....	....	....	....	....	....	....	....	....	1.01	1.01	....	1.00	....	1.05	....	1.01	1.01	....
23-23.9	....	....	....	....	....	....	....	....	....	1.04	1.04	....	1.02	....	1.07	....	1.04	1.04	....
24-24.9	....	....	....	....	....	....	....	....	....	1.07	1.07	....	1.04	....	1.09	....	1.07	1.07	....
Bel. 25	....	$.98	....	....	$.90	....	....	$.93	....	....	....	....	....	$.90	....	....	....	....	$.88
25-25.9	....	1.00	....	....	.92	....	....	.95	....	1.10	1.10	$.78	1.06	.92	1.11	....	1.10	1.10	.90
26-26.9	....	1.02	....	....	.94	....	....	.97	....	1.13	1.13	.80	1.08	.94	1.13	....	1.13	1.13	.92
27-27.9	....	1.04	....	....	.96	....	....	.99	....	1.15	1.15	.82	1.10	.96	1.15	....	1.15	1.15	.94
28-28.9	....	1.06	....	....	.98	....	....	1.01	....	1.17	1.17	.84	1.12	.98	1.17	....	1.17	1.17	.96
Bel.29	$1.06	....	$.96	$1.03	....	....	....	....	$1.20	....	....	....	....	....	....	....	....	....	....
29-29.9	1.08	1.08	.98	1.05	1.00	....	....	1.03	1.22	1.19	1.19	.86	1.14	1.00	1.19	....	1.19	1.19	.98
30-30.9	1.10	1.10	1.00	1.07	1.02	....	....	1.05	1.24	1.21	1.21	.88	1.16	1.02	1.21	$1.16	1.21	1.21	1.00
31-31.9	1.12	1.12	1.02	1.09	1.04	....	....	1.07	1.26	1.23	1.23	.90	1.18	1.04	1.23	1.18	1.23	1.23	1.02
32-32.9	1.14	1.14	1.04	1.11	1.06	....	....	1.09	1.28	1.25	1.25	.92	1.20	1.06	1.25	1.20	1.25	1.25	1.04
33-33.9	1.16	1.16	1.06	1.13	1.08	....	....	1.11	1.30	1.27	1.27	.94	1.22	1.08	1.27	1.22	1.27	1.27	1.06
34-34.9	1.18	1.18	1.08	1.15	1.10	....	....	1.13	1.32	1.29	1.29	.96	1.24	1.10	1.29	1.24	1.29	1.29	1.08
Bel. 35	....	....	....	....	....	$.96	$.91	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1.20	1.20	1.10	1.17	1.12	.98	.93	1.15	1.34	....	1.31	.98	1.26	1.12	1.31	1.26	1.29	1.29	....
36-36.9	1.22	1.22	1.12	1.19	1.14	1.00	.95	1.17	1.36	....	1.33	1.00	1.28	1.14	1.33	1.28	1.29	1.29	....
37-37.9	1.24	1.24	1.14	1.21	1.16	1.02	.97	1.19	1.38	....	1.35	1.02	1.30	1.16	1.35	1.30	1.29	1.29	....
38-38.9	1.26	1.26	1.16	1.23	1.18	1.04	.99	1.21	1.40	....	1.37	1.04	1.32	1.18	1.37	1.32	1.29	1.29	....
39-39.9	1.28	1.28	1.18	1.25	1.20	1.06	1.01	1.23	1.42	....	1.39	1.06	1.34	1.20	1.39	1.34	1.29	1.29	....
40,over	1.30	1.30	1.20	1.27	1.22	1.08	1.03	1.25	1.44	....	1.41	1.08	1.36	1.22	1.41	1.36	1.29	1.29	....

Wyoming Production

	Bbls.
Salt Creek	15,760
Big Muddy	1,280
Dallas Derby	580
Frannie	1,200
Garland	1,770
Hamilton dome	2,540
LaBarge	1,120
Lance Creek	10,470
Lost Soldier	1,580
Medicine Bow	3,180
Oregon Basin	1,850
Osage	910
Quealy dome	690
Rock River	2,240
South Casper	490
Wertz	700
Miscellaneous	1,400
Total Wyoming	47,760

New Mexico Production

Cooper	5,020
Eaves	930
Eunice	25,870
Hardy	1,820
Hobbs	15,220
Jal	1,230
Langlie	3,560
Lynch	600
Lynn	860
Mattix	2,820
Monument	26,950
Penrose	5,010
Skelly	1,790
South Eunice	2,840
Vacuum	1,480
Artesia-Maljamar	6,520
Miscellaneous	1,420
Total New Mexico	103,940

Oil Man's Calendar

May

14-21—Tulsa, International Petroleum Exposition.

23-25—Wichita, Kans., American Petroleum Institute, eighth midyear meeting.

23-25—Detroit, Mich., State Safety Conference, Hotel Statler.

27-28—State College, Pa., seventh annual conference, School of Mineral Industries, Pennsylvania Grade Crude Oil Association and Pennsylvania Natural Gas Men's Association.

June

4—Robinson, Ill., sixth annual Petroleum Conference of Illinois-Indiana.

6—Houston, Tex., Oil Workers International Union.

9-10—Toronto, Canada, Canadian Gas Association annual meeting, Royal York Hotel.

16-18—Pittsburgh, Pa., Pennsylvania Grade Crude Oil Association.

20-24—St. Louis, Mo., American Society of Mechanical Engineers.

12-17—White Sulphur Springs, W. Va. Society of Automotive Engineers, summer meeting, The Greenbrier.

15-18—Dallas, Tex. American Society of Mechanical Engineers, National Oil and Gas Power Meeting.

June-July

27-1—Atlantic City, N. J., annual meeting of American Society for Testing Materials.

August-September

31-3—Spokane, Wash., Pacific Coast meeting of American Institute of Electrical Engineers.

September

14-16—Santa Barbara, Calif., annual meeting Pacific Coast Gas Association, Biltmore Hotel.

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1938 High	1938 Low	Week ending May 7 Sales	Week ending May 7 High	Week ending May 7 Low	Week ending May 7 Close	Stocks—	Total shares outsanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
72½	57	2,300	65	62	65	Amerada Corp.	788,675	N.P.	50cQ	4-30-38	$2.00	114⅞	51½	125½	75
24	17¾	4,800	22½	20⅝	22	Atlantic Refining	2,663,999	$25	25cQ	6-15-38	1.00	37	18	35⅛	26⅝
19	12⅛	3,000	16⅞	15½	16⅞	Barber Co.	387,149	$10	75c	12-16-37	1.00	43⅜	10⅛	38½	21
16⅜	10⅛	13,700	14⅞	13⅛	14⅝	Barnsdall Oil Co.	2,250,344	$5	25cQ	5-2-38	1.00	35¼	10	28¼	14⅛
10½	7	14,300	9⅛	8⅜	9⅛	Consolidated Oil Corp.	13,919,417	N.P.	20cQ	5-14-38	.90	17⅞	7	17¼	11⅛
34⅜	21¼	8,300	29	26½	28⅞	Continental Oil of Delaware	4,682,583	$5	25cQ	3-31-38	1.50	49	24	44⅞	28⅛
8⅞	5	8,100	7½	6⅜	7¼	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	17⅝	4¾	13⅞	6⅝
22⅝	12¼	1,500	17¾	15⅛	17¾	Mid-Continent Petroleum	1,855,912	$10	25c	6-1-38	1.50	35⅜	14	30⅞	17¼
17¾	11	700	14¼	13½	14¼	Mission Corporation	1,399,345	N.P.	25c	12-24-37	1.25	34	15	29⅞	16¾
23	14⅛	4,000	19	17¼	18⅝	National Supply	382,591	$25	$2 pf.‡	12-22-37	(‡)	41⅜	17⅝	75½	19⅞
14⅞	10	4,100	12⅝	11⅝	12⅜	Ohio Oil Co.	6,563,377	N.P.	50cSA	12-15-37	1.00	22⅞	9	18	12⅛
15⅞	10¼	200	10⅜	10½	10⅜	Pacific Western Oil	1,000,000	N.P.	75c	12-15-37	.75	29¾	11¾	23½	11¾
9¼	7	No sales ..	..	..	..	Pan American Pet. & Trans.	4,702,945	$5	$1 •	12-21-37	1.00	17⅛	7	20⅝	12¼
42½	27¼	9,900	35½	32⅜	35⅛	Phillips Petroleum	4,449,052	N.P.	50cQ	6-1-38	2.75	64	30⅛	52⅜	38⅛
20	15	2,100	19	17⅞	19	Plymouth Oil Co.	1,029,800	$5	35cQ	9-30-37	1.65	29⅞	13	27¾	11⅞
13½	8½	9,400	10¾	9¾	10¾	Pure Oil Co.	3,281,120	N.P.	25c	12-1-37	.25	24⅜	8¾	27⅞	16
7⅞	5	5,700	6¼	5⅜	6¼	Richfield Oil Corp.	3,285,120	N.P.	25c	12-24-37	.25	6½	4⅛	..	
27½	15¼	1,400	21⅝	19½	21⅝	Seaboard Oil of Delaware	1,224,283	N.P.	25cQ	6-15-38	1.00	54⅛	16	44	30⅛
18¼	10	2,900	13⅜	12	13⅜	Shell Union Oil	13,070,625	N.P.	50c	12-20-37	1.00	34¾	14⅞	28¼	14¾
34⅜	18½	3,200	26¼	22⅛	26¼	Skelly Oil	1,003,949	$15	50c	12-15-37	1.50	60⅝	26½	47⅜	19⅛
16⅜	10¾	34,700	14¼	13	14⅛	Socony-Vacuum	31,151,071	$15	25c	3-15-38	.80	23¼	13	17½	12⅛
33⅞	25⅛	7,300	30⅝	28⅜	30⅝	Standard Oil of California	13,014,754	N.P.	35cQ†	3-15-38	2.00	50	27⅛	47⅝	35
35½	24¾	4,500	31	29	30⅞	Standard Oil (Indiana)	15,267,030	$25	25cQ	3-15-38	2.30	50	26½	48½	32¾
35½	32¼	No sales ..	..	..	..	Standard Oil of Kansas	112,837	$10	$5	12-20-37	5.00	43	30⅝	31	25
54⅛	39¾	20,300	49⅞	45⅛	49⅛	Standard Oil of New Jersey	25,856,081	$25	$1.25SA†	12-15-37	2.50	76	42	70⅜	51⅛
57⅞	45	600	50⅛	48	50⅛	Sun Oil	2,316,484	N.P.	25cQ	6-15-38	$1 & 8% Stk.	77½	44½	91	70
3¾	1¾	5,000	2⅝	2⅜	2⅝	Superior Oil Corp.	1,388,079	$1	....	....	....	7¾	1½	6¾	3
44⅞	32⅝	24,300	40	35¾	39½	Texas Corp.	10,875,006	$25	50cQ	4-1-38	2.25	65⅛	34¾	55¼	28⅞
4⅞	2⅝	2,400	3⅝	3½	3⅝	Texas Gulf Producing Co.	888,135	N.P.	10c	12-23-37	.10	9⅝	2	8⅞	4⅜
10⅛	7	5,100	9⅛	8⅝	9	Texas Pacific Coal & Oil	888,237	$10	10c	6-1-38	.40	16⅝	5⅜	15¼	7½
15½	10⅛	12,600	13⅝	12¾	13⅝	Tide Water Associated	6,369,175	N.P.	25cQ	6-1-38	1.20	21⅝	13⅛	21¾	14¾
21⅝	17⅛	2,800	20	19¼	20	Union Oil of California	4,666,270	$25	30cQ	5-10-38	1.40	28¼	17½	28½	20⅜
23½	20	1,000	20½	20	20	Union Tank Car Co.	1,200,000	N.P.	40cQ	3-1-38	1.60	31½	22	31⅝	22⅝
2¾	1⅝	No sales ..	..	..	..	Wilcox Oil & Gas	424,839	$5	....	5-10-28	....	6¼	1¾	5¼	2¾

•Payable in 3½% notes. †Includes extras. ‡One-tenth share $2 preferred stock.

New York Curb Exchange

1938 High	1938 Low	Week ending May 7 Sales	Week ending May 7 High	Week ending May 7 Low	Week ending May 7 Close	Stocks—	Total shares outsanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
9⅜	5	4,900	7⅜	6⅛	7¼	American Republics Corp.	1,308,049	$10	30c	12-27-37	$0.40	10	6⅝	..	..
10¼	5¼	100	6¼	6¼	6¼	Bridgeport Machine Co.	260,000	N.P.	1.25	12-30-37	$2.00	21⅜	7	21	13¼
39	32½	No sales ..	..	..	..	Buckeye Pipe Line Co.	200,000	$50	50cQ	6-15-38	3.75	51½	36	50	39¾
110	97	100	101	99¾	101	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	3-21-38	7.00	123	95½	124¾	105
10¼	7¾	8,600	10⅛	7¾	10⅛	Cities Service (new)	37,804,394	N.P.	....	6-1-32	....	5⅜	1½	7⅝	3
2⅜	1	1,900	1⅜	1¼	1¼	Cosden Petroleum	399,687	$1	....	..	....	5½	1½	4½	1½
27½	17½	7,000	21½	19½	21½	Creole Petroleum	6,974,356	$5	50cSA†	12-15-37	1.00	38¾	20¼	39	19⅞
8¾	5½	100	7	7	7	Darby Petroleum	351,390	$5	25cSA	1-15-38	.50	18⅝	6½	18⅛	9
3½	2	1,000	2¾	2½	2¾	Derby Oil & Refining	263,162	N.P.	....	.....	....	8⅜	2¼	6⅜	1⅞
31	22⅝	No sales ..	..	..	..	Eureka Pipe Line	50,000	$50	$1Q	5-2-38	4.00	47½	24½	47½	38½
42⅞	33	2,100	36½	35½	36½	Gulf Oil Corp.	9,076,202	$25	25cQ	4-1-38	1.00	63½	33	59	36
70	56	3,700	70	65⅞	70	Humble Oil & Refining	8,923,935	N.P.	37½c	4-1-38	2.00	87	54⅞	80	57
19½	15	2,900	17⅛	16¾	17⅛	Imperial Oil of Canada	26,919,871	N.P.	62½cSA†‡	12-1-37	1.25	24¼	14½	24½	19⅝
8¼	6⅝	200	7⅜	7	7⅜	Indiana Pipe Line	300,000	$10	30c	5-14-38	.80	15	5⅞	9⅜	5½
31¼	23	3,600	26⅛	25⅛	25⅞	International Petroleum	14,247,088	N.P.	$1.25†‡	12-1-37	2.50	39½	23½	39⅝	32⅝
5	3¼	500	4	3⅞	3⅞	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	....	8¾	2⅜	5¾	2⅝
25⅛	15⅝	2,300	22¼	20⅝	21⅜	Lion Oil Refining	434,820	N.P.	50cQ†	12-24-37	1.50	34	12½	17¾	7⅜
9¼	6⅝	1,900	8	7⅝	8	Lone Star Gas	5,382,723	N.P.	20c	4-20-38	.60	14¼	5¼	14¼	9⅞
9⅜	6½	6,500	7⅞	6⅞	7¼	Louisiana Land & Exp.	3,000,000	N.P.	20cQ†	12-15-37	.50	15⅛	6¾	15⅝	9⅞
8⅝	6⅝	900	8¼	7⅜	8¼	Midwest Oil Co.	998,444	$10	50c	6-15-38	1.00	14⅝	6¼	..	..
5¼	4½	1,000	5½	5¼	5¼	Mountain Producers	1,682,182	$10	30cSA	12-15-37	.60	7⅞	4⅛	8⅜	5
14⅝	12⅛	400	13⅜	13	13⅝	National Fuel Gas	3,810,183	N.P.	25cQ	1-15-38	1.00	19½	12	23	17⅝
9¼	7⅝	400	8¼	8⅛	8¼	National Transit	509,000	$12.50	55cSA	12-15-37	1.00	12½	7¼	15¾	9¼
2⅝	1½	300	1⅝	1⅝	1⅝	New Mexico and Arizona	1,000,000	$1	1c	12-1-36	....	5	1⅛	6⅝	1⅝
4½	4	No sales ..	..	..	..	New York Transit	100,000	$5	15c	4-15-38	1.00	5⅜	3⅜	6¼	4¼
6	4	No sales ..	..	..	..	Northern Pipe Line	120,000	$10	20c	6-1-38	1.00	12¾	5¾	9¾	4⅞
7⅜	4⅛	19,500	5¼	4⅞	5	Pantepec Oil	1,608,700	N.P.	....	.....	....	9⅝	2⅜	10⅛	3¼
3½	1⅝	400	2⅛	2	2⅛	Root Petroleum Co.	336,045	$1	25c	2-1-37	.25	13¾	2	19¼	4½
4	2⅛	200	3⅛	3	3⅛	Ryan Consolidated	296,931	N.P.	....	.....	....	6½	2¼	4⅜	1⅞
5⅜	3⅜	No sales ..	..	..	..	Southern Pipe Line	100,000	$10	15cSA	3-1-38	.45	7¼	3⅞	7⅞	3¼
39	28¾	200	33	32¾	32¾	South Penn Oil	1,000,000	$25	50cQ†	3-31-38	3.65	56	35	44	32½
22¼	19½	No sales ..	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	50cQ	4-1-38	2.00	42	20	60	44
18	15	1,900	16¼	15⅝	16¼	Standard Oil of Kentucky	2,604,790	$10	25c	3-15-38	1.50	21⅛	14¾	23⅜	17⅛
7½	6⅛	No sales ..	..	..	..	Standard Oil of Nebraska	166,403	$25	25c	3-29-37	.25	13¾	8	14⅝	11
22	16¼	1,000	18¾	18	18¾	Standard Oil of Ohio	753,740	$25	25c	3-15-38	1.50	45	16	40	21¾
3¼	2⅛	900	3	2¾	2⅞	Sunray Oil	1,910,119	$1	10c	12-24-37	.25	4⅞	2	5	2⅝
4⅜	3½	100	4⅛	4⅛	4⅛	Texon Oil & Land	336,028	$2	15cQ	3-31-38	.45	7⅝	2	9¾	5⅜
7⅝	4⅝	1,800	6	5½	5¾	Transwestern Oil Co.	750,000	$10	....	.....	....	13⅞	4⅝	..	..
5¼	2¾	24,400	4¼	3¼	4⅛	United Gas Corp.	7,818,959	$1	....	.....	....	13⅝	3	10¾	4

†Includes extras. ‡Payable in Canadian funds. §Of which $1 was in preferred stock.

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NEW MEXICO Oil Leases for sale, Wholesale. Inquiries invited. Write, Box 507, Las Vegas, New Mexico.

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I HAVE 2 Block of Leases, 410 Acres in 3 miles of producing well in Wayne County, Illinois, and a large Block in Hamilton County, Illinois. Will assign for reasonable price and drilling committment. George W. Hogan, McLeansboro, Illinois.

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Blossom ..... 2750 below sea level
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Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CHARTERS — Delaware best, quickest, cheapest, more liberal. Free forms. Colonial Charter Co., Wilmington, Del.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Help Wanted

WANTED—Chemist having five or more years' experience in charge of asphalt manufacture, corrosion control, treating, boiler feed water control, research and shipments. Must have technical education as well as practical training and ability to organize this department. State salary desired. Address Box J-374, The Oil and Gas Journal, Tulsa, Oklahoma.

SALESMAN
If you are now employed selling engineering supplies or a technical service to the production division of the oil industry; if you are stymied and want to take a chance on more rapid advancement with a nation-wide firm well known to the industry; if you have an enviable record as a salesman; if you have outstanding executive, organization and management ability and can prove it; if you are willing to live in Tulsa but spend most of your time in the field promoting district sales against aggressive competition; if your salary requirements are modest—then write a brief but complete letter to the following box address telling us all about yourself. Your first letter will be strictly confidential but if anything comes of it your present employer must be willing to let you go.
ADDRESS BOX J-391
The Oil and Gas Journal,
Tulsa, Oklahoma.

Situations Wanted

EXPERIENCED gas engineer, specialist in measurement and control division of Natural Gas Industry. Sixteen years diversified practical experience. Good references. Address Box J-375, The Oil and Gas Journal, Tulsa, Okla.

ENGINEER thoroughly experienced in construction, operation and maintenance of modern refineries including combination topping and cracking units, vacuum eqpt. and mfg. of light and heavy oils. Young man. Address Box J-370, The Oil and Gas Journal, Tulsa, Oklahoma.

ENGINEER thoroughly experienced in telephone work. E. E. Degree. 9 years' experience in supervisory capacity. Now employed as Wire Chief, Bell Telephone Co. Available June 1st. Age 25. Good references. Address Box J-392, The Oil and Gas Journal, Tulsa, Oklahoma.

GEOLOGIST—core driller. Graduate geologist with seismograph core drilling experience desires position. Young, sober, reliable, go anywhere. Address Geologist, 1215 Kearney, Manhattan, Kansas.

PILOT—Desires position with oil company or independent oil operator flying multi-engine or airline type equipment. Advisory capacity on purchase of equipment. Ten years' experience. 9800 hours with major airline. Age 35. Hold airline ratings. E. E. Matucha, 3938 Howard, Western Springs, Illinois.

Ranches and Farm Lands

3000 ACRE fine stock ranch, numerous artesian wells, San Luis Valley, Colorado, raise 300 ton hay per year, good location, cool summers. You will want this on sight. $2.50 per acre. Wm. M. Haver, 2832 East Elm Street, Wichita, Kansas.

Mailing Lists

Royalty Lists. Unit Holders Lists. Oil Industry Mailing Lists covering every branch. Write your needs. Oil Industry Mailing List Co., Tulsa Loan Building, Tulsa, Oklahoma.

For Sale—Equipment

USED EQUIPMENT

Offered subject to prior sale.

DUNN TONGS
Extra good set used 4½" B-J Speedster type Rotary Tongs. Price: $75 f.o.b. Wichita. Ph: 2-1431 or LD-59.

DRILLING BITS
Good matched set of 6⅝" Bridgeport Cable Tool Drilling Bits. 3¾" Pin. Over 6' long. Weight approx. 400 lbs. ea. As good a set of used bits as can be bought. Priced right, f.o.b. Wichita. Ph: 2-1431 or LD-59.

USED BOILERS
(1) 80 h.p., 175-lb. WSP Broderick; and (1) 85 h.p., 175-lb. WSP Oil Well. These are in good condition, but have not been overhauled. Located at Whitsett near Corpus Christi. Price $350 f.o.b. present location. Ph: Corpus Christi, 574 or LD-31.

CASING CLAMPS
Stocks at all stores consist of practically all sizes and weights. These are as good as new for all practical purposes and are sold at very low prices.

BOILER FIRING CONTROL
2" Inferno Screw Type with Manifold. Practically new. Used only on one well. Price $200 f.o.b. Corpus Christi. Ph: 574 or LD-31.

ROTARY DRILL COLLAR
6¼" x 30' Used Bridgeport SAE 1040 Forged Steel Rotary Drill Collar with 4½" Regular API Boxes. Good condition in every way. (Cannot be turned to full-hole). Price: $300 f.o.b. Wichita. Ph: 2-1431 or LD-59.

ROTARY DERRICK
122' high x 24' base x 5'6" top, Used Marion, Model M-1 Calf Wheel Front, Bull Wheel Girt, Tubular Steel Rotary Drilling Derrick (stem only) with 4½" OD 15-lb. starting, running and re-legs, all necessary clamps, re-leg jacks, ladder runarounds, crow's nest, etc. Excellent condition, stacked ready for delivery from Wichita, Kans., yards. Ph: 2-1431 or LD-59.

ROTARY DRAW WORKS
Almost new, latest type Gumbo Buster Model 1805, 7½" Unit Jack Shaft Draw Works equipped with American Automatic Cathead and good chain. Used on only one 6,000-foot well and minor repairs have been made since. In stock at Corpus Christi. Ph: 574 or LD-31.

ROTARY ELEVATORS
4½" OD Wilson Extra Heavy Center Latch Rotary Drill Pipe Elevators, less links. Good condition. Price: $75 f.o.b. Wichita. Ph: 2-1431 or LD-59.

WAUKESHA ENGINE
Slightly used Model 6-GAL, 5 x 5½, 120 h.p. at 1400 r.p.m., 6-cylinder Waukesha Engine with Twin Disc Power Take Off and all standard equipment. This engine is in perfect condition. Has been used but very little and could easily pass as a brand new engine. Offered at used price, f.o.b. Wichita, Kans. Ph: 2-1431 or LD-59.

ELECTRIC GENERATOR
Garrott Type DLA, 5-KW Steam Turbo Generator. Used to drill only one well. Very attractive price f.o.b. Corpus Christi. Ph: 574 or LD-31.

SPANG FISHING JARS
5½" x 36" stroke. Good condition. Good price. Wichita Falls. Ph: 2-2106.

ELECTRIC MOTOR
15 h.p. General Electric Induction, 220/440 volt, 60 cycle, 40-20 amp., 1130 r.p.m. at full load. Type KR complete with base and 8.6875 OD x 10 groove Texrope pulley. Also several 7½ h.p. Motors. All have been rebuilt. At Wichita. Ph: 2-1431 or LD-59.

CENTRIFUGAL PUMP
2" Gould used Centrifugal Pump with 5" dia. x 5" wide flat belt pulley. Style 600603, Fig. No. 3010. Completely rebuilt. Price $20 f.o.b. Wichita.

THE BRIDGEPORT MACHINE COMPANY
Wichita, Kansas and Branches

CLASSIFIED RATES

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

95% OF ALL FIRST ORDERS FOR TRU-LAY PREFORMED

REPEAT

REPEAT
REPEAT
REPEAT

Since its introduction fourteen years ago at least 95 per cent of all those who buy TRU-LAY Rope for the first time on our recommendation—come back for more. There is no better acknowledgment of superiority.

The reasons for this high percentage of repeat business are many. In the first place, TRU-LAY Preformed is easy to handle; fast to reeve. It resists kinking and whipping; it spools perfectly on the drum, permits faster round trips. It has remarkable resistance to fatigue and so lasts longer —*much* longer. Having long life TRU-LAY reduces the frequency of machinery shutdowns thus saving idle time of both men and machines.

Specify TRU-LAY Preformed for your next rope. Learn, on your own equipment and with your own men, the real dollar value of this *original* preformed wire rope.

AMERICAN CABLE DIVISION
AMERICAN CHAIN & CABLE COMPANY, INC.
WILKES-BARRE, PENNSYLVANIA
Branches or Distributors in All Oil Field Centers

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A FEW OF THE 137 AMERICAN CHAIN & CABLE INDUSTRIAL PRODUCTS

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(DOMINION CHAIN COMPANY, Ltd., in Canada)
Weed Tire Chains • Welded and Weldless Chain • Malleable Castings
Acco-Morrow Lubricators

AMERICAN CABLE DIVISION
Tru-Lay Preformed Wire Rope • Tru-Loc Processed Fittings • Crescent Brand Wire Rope
Tru-Stop Brakes • Tru-Level Oil Controllers

ANDREW C. CAMPBELL DIVISION
Abrasive Cutting Machines • Floformers
Special Machinery • Nibbling Machines

FORD CHAIN BLOCK DIVISION
Chain Hoists • Trolleys

HIGHLAND IRON & STEEL DIVISION
Wrought Iron Bars and Shapes

MANLEY MANUFACTURING DIVISION
Automotive Service Station Equipment

OWEN SILENT SPRING COMPANY, Inc.
Owen Cushion and Mattress Spring Centers

PAGE STEEL AND WIRE DIVISION
Page Fence • Wire and Rod Products
Traffic Tape • Welding Wire

READING-PRATT & CADY DIVISION
Valves • Electric Steel Fittings

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Electric Steel Castings, Rough or Machined Railroad Specialties

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Chain Hoists • Electric Hoists and Cranes

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TRU-LAY *Preformed* ROTARY LINES

ALL AMERICAN CABLE DIVISION ROPES MADE OF IMPROVED PLOW STEEL ARE IDENTIFIED BY THE EMERALD STRAND

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GENERAL LIBRARY
ANN ARBOR MICH
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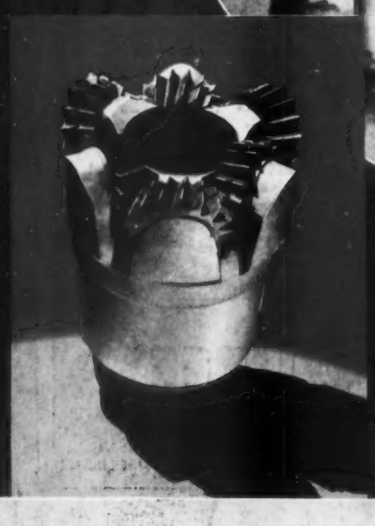
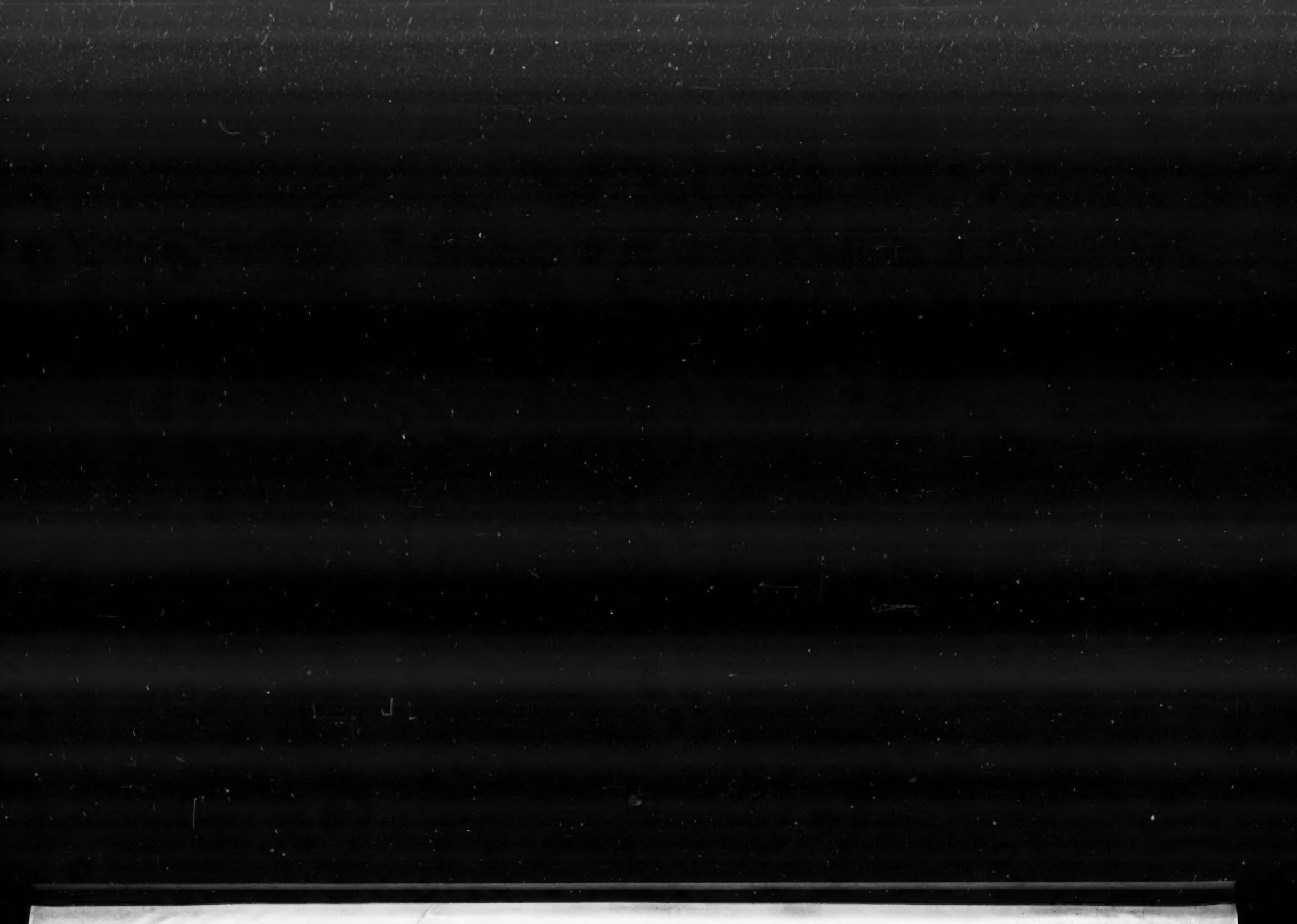
Yes..

HUGHES CORE BITS ASSURE READABLE CORES



The above photograph shows a core taken with a Hughes "Type J" Core Bit on the Thomas No. 3, Parr Ranch, in Duval County, Texas. It's the kind of core you need—it's the kind of core you get with Hughes Core Bits.

HUGHES TOOL COMPANY • HOUSTON, TEXAS, U.S.A.